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ABSTRACT

This volume is intended for secondary content area classroom teachers. The booklet is made up of selected portions of articles from periodical literature dealing with secondary reading. These articles meet the practical requirements of content area teachers who want to teach reading but who are unsure of where to begin and what to do. The five sections within the book are organized to guide teachers through a sequence of steps that can result in the development of successful classroom reading programs. A wide variety of approaches and programs is described. Overall, the volume is intended to illustrate that successful reading programs can begin with the efforts of individual teachers who take steps in their own classrooms to teach students how to learn more effectively through reading. (Author)

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classroom strategies for secondary reading

Edited by W. John Harker
University of Victoria

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800 Barksdale Road, Newark, Delaware 19711

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FOREWORD

Classroom Strategies for Secondary Reading shows very effectively the continuing contribution that the International Reading Association is making to the improvement of reading at the secondary level. Not only is this volume itself an important contribution, but all save one of the articles that comprise it first appeared in one of the Association's journals. Both the original and the lasting value of these articles—and of the journals—are illustrated by the inclusion of the articles in this helpful collection.

John Harker, editor of this volume, has added a contribution of his own by his careful selection of the articles and, particularly, by the organization he has given them. Be sure you take the time to read his introduction. The ideas that shaped the volume add to the value of reading the articles, of course, but they are also useful guides to shaping secondary reading programs.

Walter H. MacGinitie, President
International Reading Association
1976–1977

INTRODUCTION

While most secondary content area teachers recognize the importance of reading and study skills for successful student learning, many feel ill-prepared to teach these skills. Teachers feel the need to "do something about reading," but they are not sure what this "something" is. When they turn to the professional periodical literature for direction, they find themselves confronted by a mass of undigested material. The result is further confusion rather than clear guidance.

Hopefully, this publication will help.

This volume is intended for secondary content area classroom teachers and for all those able to help these teachers, including school reading specialists, consultants, and administrators. The booklet is made up of selected portions of articles from recent periodical literature dealing with secondary reading. These articles have been chosen deliberately to meet the practical requirements of content area teachers who want to teach reading, but who are unsure of where to begin and what to do. The five sections within the book are organized to guide teachers through a sequence of steps that can result in the development of successful classroom reading programs. At the same time, the volume is sufficiently flexible that individual sections and articles may be consulted in isolation for assistance with particular topics. Overall, the volume is intended to illustrate that successful reading programs can begin with the efforts of individual teachers who take steps in their own classrooms to teach students how to learn more effectively through reading.

In order to teach reading and study skills along with content, it is first necessary to establish student reading and study skills status with respect to specific content area learning tasks. Section one gives direction in how to assess this status. Assessment will almost always reveal a wide diversity and range of student reading and study skills needs which must be accommodated by the instructional materials used in the classroom. Section two provides guidance in selecting content area instructional materials which accommodate students' reading and study skills needs and which also contain the content required to meet content area learning objectives. The articles in section three illustrate general classroom instructional strategies through which student centered learning environments can be created. Section four focuses on specific methods for teaching particular reading and study skills within the framework of the general instructional strategies outlined in section three. The fifth section provides guidance for the development of classroom reading and study skills programs which coherently integrate the various program elements described in the previous four sections.

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The International Reading Association attempts, through its publications, to provide a forum for a wide spectrum of opinion on reading. This policy permits divergent viewpoints without assuming the endorsement of the Association.

Section One

ASSESSING READING DEVELOPMENT

Effective teaching begins with the assessment of students' reading and study skills status. Before assessment takes place, however, two things are required. First, content area instructional objectives—the actual content area learning outcomes that are to result from instruction—should be clearly established. Then, by taking the place of the students and by thinking through the learning tasks students must perform in order to achieve content area learning objectives, the teacher can determine the reading and study skills students will need for this learning. In determining these skills, consideration should be given to such factors as students' previous experience with the content of the material to be read, the teaching methods to be employed, and the degree of independence in learning to be expected.

Once the reading and study skills necessary for content learning have been determined, the extent to which students possess these skills can be assessed. At this point, a decision must be made as to whether it is more advisable to build an informal teacher made test, or whether student proficiency can be assessed accurately by the selection of an appropriate standardized test. Once tests have been selected, administered, and scored, local norms can be developed to determine the relative abilities of individual students or to compare the performance of students in different years.

This section contains three articles which describe how to measure student reading status. In the first, Ahrendt and Haselton outline how an informal test of reading and study skills can be developed by drawing directly upon the content area material used in the classroom. Mavrogenes and others categorize and evaluate the various standardized reading tests available, and Fry gives clear direction on how local norms can be developed and used.

- *What specific questions should teachers ask themselves in order to construct valid informal skills inventories?*

INFORMAL SKILLS ASSESSMENT FOR INDIVIDUALIZED INSTRUCTION

Kenneth M. Ahrendt
Shirley S. Haselton
Oregon State University

The preassessment of what the pupil brings to the course is essential for successful teaching in either a group or an individualized situation. A simple assessment of whether a student can read, needs help in reading, or cannot read does not constitute an adequate evaluation of a student's strengths and weaknesses if he/she is to attain maximum benefits from instruction in a particular content area classroom.

The secondary teacher may not be qualified to give reading instruction to students lacking basic skills; there is little justification in the content teacher's own field; he is not a reading specialist. Spache (1963) suggests it is the responsibility of the content area teacher to make the most effective use of any written materials which might further student understanding of the skills, processes, and knowledge related to that particular content.

Only when teachers realize that not all students possess the same skills and abilities will they make adjustments in teaching techniques to accommodate the needs of the individuals in their classrooms. Because neither standardized tests nor the Group Informal Reading Inventory provide sufficient information about a secondary student's readiness for learning the content material of a specific class, each potential teacher at Oregon State University constructs his own evaluation instrument for his own content area. This preassessment or entry behavior measurement follows the suggestions laid out by Viox (1968) with the embellishment of Gorow (1972) and Weigand (1971). We call it the Informal Skills Inventory.

Adapted from *Journal of Reading*, 17 (October 1973), 52-57.

Purpose

The purpose of this inventory is twofold: to identify individual skill weaknesses and strengths and to identify the amount of background information or raw material possessed by the student. In order for the secondary teacher to construct, administer, and evaluate such an instrument, he must first ask himself the following questions: 1) What knowledge and skills are necessary and important in my content area? 2) What am I going to teach? 3) How am I going to teach? 4) What prior knowledge or skills must my students have if they are to profit from my instruction?

Each teacher must answer these questions for himself; since his responses reflect his values, they will also determine his evaluation of student achievement. The Informal Skills Inventory, designed to assess the readiness level of each student within a particular class, in a unique creation of the teacher. Although skills overlap from one discipline to another, as well as within a single subject, the approach or material used is individualistic.

The following is an example of an Informal Skills Inventory written by a business education major. Although her students have had some prior instruction in bookkeeping, she is about to begin a new unit on "interest," and believes that a preassessment of student knowledge and skills related to the topic will guide her in formulating appropriate instruction.

Using Viox's suggestions, the teacher has divided her inventory into definite segments: 1) purpose of the test; 2) directions to the teacher—this explanation is inserted so that any teacher in the field, including a substitute, can administer the instrument; 3) directions to the students; 4) selections the teacher used to tap background knowledge; 5) questions to be answered by the students to test for technical terminology, mathematical problem solving, following directions, and spelling. This business education student constructed the inventory on the decisions she made as a teacher, administered it to a class, compiled the results, and had a clear picture of the areas of weakness and strength of the pupils she would be teaching. Based on this information, she then developed directed teaching activities on several levels to accommodate for the individual differences in her class.

Skills Inventory

Purpose of the test: To see how accurately students can A) understand technical terms related to bookkeeping, B) use mathematical knowledge to solve problems, C) follow directions, and D) spell correctly.

Directions to teacher

Part A. Look through the chapter or chapters of the next unit to be studied and pick out words in context which you feel might give your students some problems. Prepare, or take from the text, sentences containing these words and ask students to give a short, written definition of each.

Part B. Duplicate for each student, or print on the board, a simple method for computing interest. Then give students several problems to figure using this method.

Part C. Give students directions for preparing a trial balance. It would be best to duplicate a copy of directions for each student. Also, give each student a trial balance form and ask him to complete it by following the directions you have given. The amounts or figures to be used for each account could be written on the board or duplicated with the directions.

Part D. Look through the chapter or chapters to be covered next and pick out words you think might be difficult for students to spell. Write these phonetically and ask students to rewrite them correctly.

Directions to students

In our next unit we will be learning about interest—what it is, how to figure it, and how to keep records. We will be learning several new business and accounting terms, also. I want to find out how well you: 1) understand terms relating to bookkeeping, 2) comprehend material common to business subjects, 3) follow directions, and 4) spell business terms correctly. This is not a test, and you will not be graded. It is an inventory to be used to try to get an approximate idea of your skills at the present time.

Part A

Directions: The words underlined in the following sentences are taken from your textbook. From what you read in each sentence, write a short definition for each underlined word. (If you can substitute one word that you think defines or could be substituted for the underlined word, this is fine.)

1. The interest on the loan has accrued at the end of six months (accumulated).
2. The price of wheat has greatly depreciated now that so many farmers are growing it (fallen, become less).
3. Mary had to go over and recheck all the books to try to reconcile the balances (adjust, settle).
4. Mr. Black sent a written requisition stating he wished to see the accounts (demand, request).
5. The subsidiary company sends its annual reports to be checked by the main company office in New York (auxiliary, secondary).

Part B

Directions: A businessperson who borrows money is usually required to repay the loan plus a charge for interest. This charge will depend upon the amount borrowed (the *principal*), the length of time the money is used (the

time), and the percent agreed upon (the *rate*.) The total payment or the *maturity value* of an amount of money borrowed will be computed as follows: *principal x rate x time = maturity value*. Time is assumed to be one year in this case. One year is equal to 360 days. One month is equal to 30 days. To figure interest for partial years and months, follow this example:

On January 12, 1972, I borrowed $300.000 at an interest rate of 4%. The maturity value is to be paid on September 16, 1972.

January has	30	days (day money was borrowed)
	−12	
	18	remaining days in the month of January
February–August	+210	30 days x 7 months
	228	
September	+ 16	days (day to be repaid)
	244	total days on which interest will be paid

Divide this total by 30 (30 days represents a month); 244 ÷ 30 = 8, with a remainder of 4. If the remainder is less than 15, these days are dropped. If the remainder is 15 or more, an extra month will be added.

Maturity value then is equal to principal ($300.00) × rate (4%) = $12 × time (8/12) = $8. Principal + interest = $308. (This is the maturity value.)

Part B Problems

Solve the following interest problems by the preceding formula and directions.

1. On May 1, 1972, the Baker Company borrowed $1,000 at a rate of 6%. The loan plus interest is to be repaid on April 30, 1973. What will be the maturity value of the loan? ($1,060)

2. Mark borrowed $500 on April 16, 1971, at a rate of 5%. The loan was to be repaid with interest on December 29, 1971. What was the maturity value? ($516)

3. Rogers Publishing Company borrowed $12,000 on January 6 of this year at a rate of 6%. They have said they will repay the loan with interest in exactly 10 months. What will be the day of repayment, and what will be the amount they repay? (November 6, $12,600)

4. Montgomery Services loaned $15,500 to Harper Brothers at a rate of 7%. The loan is a 90-day loan begun on June 11, 1972. What will be the maturity value of the note and on what day will it be repaid? (September 11, $15,771.25)

5. Smith and Sons borrowed on May 17, 1972, $9,000 from the bank at a rate of 8%. They will repay this loan with interest on February 12, 1973. What will be the maturity value? ($9,540)

Part C

Directions: This part of the inventory is to determine how well you can follow directions to prepare a trial balance. The form is given below, with directions for completing it. Do your best.

A trial balance is a test of the ledger and may require corrections. Therefore, it is usually done in pencil (please use a pencil).

Directions for completing Trial Balance:

Henry Chase
Trial Balance
February 4, 1972

ACCOUNT TITLE	DEBIT	CREDIT
Cash	4,300.00	
Accounts Receivable	2,000.00	
Equipment	1,600.00	
Office Machines	700.00	
Everett Brothers		200.00
Cooks Hardware		50.00
Henry Chase, Capital		8,650.00
Henry Chase, Drawing	300.00	
Totals	$8,900.00	$8,900.00

1. The company owner is Henry Chase. Write his name *centered* on line 1.

2. Write the words, Trial Balance, on line 2 directly under Henry Chase.

3. Write the current date on line 3, directly under Trial Balance.

4. Assets are listed first in the account title section. Assets are placed on a line with the corresponding balance on the same line in the *debit* column. Begin writing asset accounts and their balances on line 5 with "Cash" and continue until you have written all the assets, and their balances.

5. Liabilities are written after assets. Again, write one liability to a line with its balance on the same line in the *credit* column. (You should be starting on line 9.)

6. The capital account is written after liabilities. Write Henry Chase, Capital and place the balance in the *credit* column on the same line.

7. The drawing account is written after the capital account. Write Henry Chase, Drawing, and place the balance in the *debit* column on the same line.

The next step after writing down all the accounts and their balances is to total the debit and credit columns separately.

8. Write the word *Totals* on the line after the drawing account, but indent it 1/2 inch. Then draw one line across both columns and under the last figure you have written. (This will be the drawing account figure.) Add the columns

and write the totals under the debit and credit columns on the same line as the word *Totals*.

9. If the two columns are equal, draw 2 lines under the totals across the debit and credit columns. If they are not equal, you have made an error and need to recheck your work.

Part D

Directions: The following words are written phonetically and you should have no difficulty knowing what each word is. I want to know if you can *spell* each word correctly. After each word printed, write the correct spelling as best you can.

1. ă-kow'-tunt	1. *accountant*
2. ô'-dĭt	2. *audit*
3. kăn'-sĕld	3. *cancelled*
4. krŏn'-o-lŏj-ĭ-kăl	4. *chronological*
5. sī'-fĕr-ing	5. *ciphering*
6. kŏ-mĭsh-ŭn	6. *commission*
7. ĕg-zĕmp'-shŭn	7. *exemption*
8. nē-gō-shĭ-ă-bĭl'-ĭ-tĭ	8. *negotiability*
9. prŏ-prī'ĕ-tĕr-shĭp	9. *proprietorship*
10. ĕk'-wĭ-tĭ	10. *equity*

The skills inventory presented here indicates that the content area teacher is able to teach both subject matter and the related reading skills without divorcing one from the other. An analysis of the responses to questions helps the teacher to determine when to use large group, small group, or individualized instruction.

The goal of good teaching is to afford each student with a successful experience in content area classes so that he develops a positive self-concept about learning. The content area teacher, secure in the knowledge that there are techniques for doing the things reading specialists claim should be done in the secondary classroom, develops and maintains a positive concept about teaching.

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Viox, Ruth G. *Evaluating Reading and Study Skills in the Secondary Classroom*. Newark, Delaware: International Reading Association, 1968.

Weigand, James E., Ed. *Developing Teacher Competencies*. Englewood Cliffs, New Jersey: Prentice-Hall, 1971.

- *What are the distinguishing characteristics of the four kinds of standardized reading tests identified by the authors?*
- *Under what circumstances should each kind of test be used?*
- *What cautions for the use of standardized reading tests are indicated by the test evaluations?*

CONCISE GUIDE TO STANDARDIZED SECONDARY AND COLLEGE READING TESTS

Nancy A. Mavrogenes
Carol K. Winkley
Earl Hanson
Richard T. Vacca
Northern Illinois University

The IRA Evaluation of Tests Committee recently published, as part of the Reading Aids Series, *Reading Tests for the Secondary Grades: A Review and Evaluation* (Blanton, Farr, Tuinman, 1972) to help secondary teachers locate appropriate tests for classroom use. Edward Fry's review (1973) of this booklet mentioned the problem he experienced in reviewing the committee's work, the same problem the authors of the booklet had and potential readers will have: test reviews in Buros' *Mental Measurements Yearbooks* must be consulted before a final choice of tests can be made. Fry asks, "If the consumer should look in the MMY anyway, why should he look in *Reading Tests for the Secondary Grades*?" Then he summarizes his reaction to this IRA booklet: "Its chief problem is that it is not comprehensive enough for good teachers and is too hard to read for poor teachers."

Therefore, in order to help *all* teachers, the concise guide that follows is offered as a beginning step through the maze of secondary and college reading tests. Hopefully, it will be both comprehensive enough and not too hard to read so that a teacher might gain some insight as to where to start in using Buros' *Mental Measurements Yearbooks*, which always must remain the chief source for information on any test.

Adapted from *Journal of Reading*, 18 (October 1974), 12-22.

Four Types of Tests

The present guide includes four types of tests published in the United States. The first category is Survey Tests. These are group tests which always include measurement of comprehension, usually include vocabulary, and sometimes include rate. They are used by the classroom teacher to determine the range and the average of class reading ability, to divide the class into groups for instruction, to aid in selection of appropriate materials, to help identify reading disabilities, and to measure student progress. School administrators may also use such tests to measure the effectiveness of instruction, to evaluate new programs or different methods, and to identify pupils at various ability levels. The tests included in this section are those appearing in the IRA booklet which reviewed "several of the most commonly used reading achievement tests currently available for use with high school students." The authors of the booklet chose the most commonly used tests on the basis of an analysis of the research reports from the Eric Clearinghouse on Retrieval of Information and Evaluation on Reading. One further test, the Burnett Reading Series, was added on Fry's suggestion.

The second category is Analytical Tests, a term used by Albert Harris (1970). These are group tests, and most of them are survey tests with some diagnostic subtests. They can be used by the classroom teacher or a remedial teacher to provide a more detailed analysis of a student's reading difficulty, to find clues to his reading problems, and to find the appropriate level for remedial reading instruction. The tests in this section also were taken from the IRA booklet and Fry's review, in addition, some of the tests were added because they were suggested in Harris' book (1970), in the Bond and Tinker text (1973), and from the authors' experiences.

The third category is Diagnostic Tests. These are individual tests (except for parts of Botel's and Silvaroli's reading inventories) and need practice or some special training to administer. They are used for a detailed analysis of extensive disability. Some of the tests in this section would seem to be at a low level for secondary schools and colleges; all or parts of them, however, can be used for cases of severe disability, and several of them are specifically described by Harris or Bond and Tinker as useful with retarded readers at the secondary level. (These remarks could apply to some of the analytical tests, also.) These diagnostic tests were chosen on the basis of their inclusion in Harris' book, from the authors' experiences, and one test (the Wide Range Achievement Test) on the basis of Fry's review.

The fourth and final category is Special Tests. These cover only one aspect of reading or some unusual aspects and are mostly group tests. They might be useful for classroom teachers for a very specific or novel purpose. The listing does not pretend to be complete; it is highly representative, and tests were chosen on the basis of uniqueness and utility from the "Guide to

Tests and Measuring Instruments in Reading" compiled by Roger Farr and Edward G. Summers (Farr, 1969) and from Buros' *Seventh Mental Measurements Yearbook* (1972). Many examples exist for some of these special tests; for example, study methods and adult basic education. In these cases, the tests were selected which had the most favorable reviews. In any event, an attempt was made in this section to give an idea of the wide variety of tests available.

Some further clarification of criteria for test selection follows. First, the term *secondary* was defined as seventh grade and above. Second, this entire list is representative only. A look at the 34-page Index of Titles in Buros' *Reading: Tests and Reviews* (1968), including almost 2,000 tests, should convince anyone of the impossibility of a complete list of only journal length. Third, most of the brief evaluations in the last column of the guide have been highly condensed from reviews in the *Mental Measurements Yearbooks*. (The latest edition was used, if reviews were found there.) The IRA booklet was used for evaluation of the tests taken from there. If the evaluation column is left blank, no review was available. Finally, to the writers' knowledge, these tests are still in print. Either a specimen set of each test was recently secured or the test was listed in the latest *Mental Measurements Yearbook* (1972).

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Farr, Roger. *Reading: What Can Be Measured?* Newark, Delaware: International Reading Association, 1969.

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Harris, Albert J. *How to Increase Reading Ability*, 5th ed. New York: David McKay, 1970.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
SURVEY TESTS:					
Burnett Reading Series: Survey Test, Scholastic Testing Service	Vocabulary, comprehension, rate and accuracy	7-13	1967-70	50	Norms and validity data incomplete; problems concerning interpretation of some items; some cultural bias.
Cooperative English Tests—Reading Section Educational Testing Service	Vocabulary, comprehension, speed of comprehension	9-14	1960	40	Perhaps not accurate for very high or low reading levels; normed mostly in Southern small town schools, but on the whole a satisfactory test.
Davis Reading Test Psychological Corporation	Level and speed of comprehension	8-13	1961	40	Lacks vocabulary measure but well-constructed test.
Gates-MacGinitie Reading Tests, Surveys E & F Teachers College Press, Columbia University	Speed and accuracy, vocabulary, comprehension	7-12	1970	46	Normative and reliability data inadequate; comprehension measures only use of context; but useful *Technical Supplement* and well-constructed test.
Metropolitan Achievement Tests: Reading, Advanced Harcourt Brace Jovanovich	Vocabulary, comprehension	7-9	1970	46	Measures higher cognitive processes; one reading selection relevant to black culture; clear manual and well-constructed test.
Nelson-Denny Reading Test Houghton-Mifflin	Vocabulary, comprehension, rate	9-16	1960 (two new forms 1973)	40	Covers too great an age span; time restrictions create difficulty; literary emphasis; most suitable for college; insufficient reliability and validity data.
Nelson Reading Test Houghton-Mifflin	Vocabulary, comprehension	3-9	1962	30	Covers wide range and takes little time; reliability and validity data insufficient; vocabulary dated.
Sequential Tests of Educational Progress (STEP), Series II: Reading, Educational Testing Service	Comprehension	4-14	1969	45	Limited reliability and norming information; scanty manual, but appealing reading passages, pleasing format and high content validity.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Stanford Achievement Tests: Advanced Paragraph Meaning, High School Reading Harcourt Brace Jovanovich	Comprehension	7-12	1965-66	40-45	Adequate norming and reliability data; excellent manual; high school tes measures only literal and factual com-prehension; very good series of reading tests.
Traxler High School Reading Test—Revised Bobbs-Merrill	Comprehension, rate	9-12	1967	55	Measures lower level cognitive skills; paragraphs in social studies and science; inadequate norming and validity data; low reliabilities; possi-bility of answering questions without reading passages.
Traxler Silent Reading Test Bobbs-Merrill	Rate, vocabulary, comprehension	7-10	1969	55	Useful test, but social class bias on some parts may reduce efficacy for lower-social-class students.
ANALYTICAL TESTS:					
California Achievement Tests: Reading California Test Bureau/ McGraw-Hill	Vocabulary, study skills, comprehension in different types of materials	6-12	1970	50-75	Improved version for survey purposes; vocabulary words in context; content area passages; well standardized.
Comprehensive Tests of Basic Skills: Reading California Test Bureau/McGraw-Hill	Vocabulary, comprehension study skills	6-12	1968-69	60-65	Items classified in terms of intellectual process; minority groups represented in norms; variety of scoring reports; comprehensive manuals and well-constructed tests.
Diagnostic Reading Tests Committee on Diagnostic Reading Tests	Vocabulary, comprehension (silent and auditory), rate, word attack	7-13	1963	varies	Confusing manuals; technical informa-tion missing; but ambitious attempt.
Durrell Listening-Reading Series Harcourt Brace Jovanovich	Vocabulary listening and reading, paragraph listening and reading	1-9	1969-70	140-195	Some questions raised as to design of test items and purpose of measuring degree of retardation, but compares very favorably with other tests of reading and listening abilities.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Dvorak-Van Wagenen Diagnostic Examination of Silent Reading Abilities Van Wagenen Psycho-Educational Laboratories	Rate, perception of relations, vocabulary, information, details, central thought, inferences, interpretation, reading for ideas	4-16	1939-54	140-150	Useful for speed of comprehension and as a general measure of reading ability; diagnostic value limited by unreliability of differences among separate test scores.
Iowa Silent Reading Tests Harcourt Brace Jovanovich	Vocabulary, comprehension, locating information, skimming and scanning, reading efficiency	6-12	1973	60	Carefully prepared and easy to use.
Monroe-Sherman Group Diagnostic Reading Aptitude and Achievement Tests C. H. Nevins Printing Company	Comprehension; speed; word discrimination; arithmetic; spelling; visual, motor and auditory ability; vocabulary	3-9	1939	60-70	No data on reliability and no description of norming population.
Reading Test: McGraw-Hill Basic Skills System McGraw-Hill Book Co.	Rate, flexibility, retention, skimming and scanning, comprehension	11-14	1970	70	Lack of adequate norming samples, but high face validity and clear manual; promising test.
Silent Reading Diagnostic Tests (Bond, Balow, Hoyt) Lyons & Carnahan	Words in isolation and in context, visual structural analysis, syllabication, word synthesis, beginning and ending sounds, vowel and consonant sounds	2-6	1970	90	Limited in value but provides some useful diagnostic information.
SRA Achievement Series (Multilevel Edition) Science Research Associates	Comprehension, vocabulary, work-study skills (references and charts)	1-9	1963	77	Strengths to recommend its use: ease of administration, clarity of format, overlapping tests providing for large classroom range, and large standardization sample.
Stanford Diagnostic Reading Test Level II Harcourt Brace Jovanovich	Comprehension (literal and inferential), vocabulary, syllabication, auditory skills, phonic analysis, rate	4.5-8.5	1966	90-110	Offers suggestions for grouping and remediation; carefully standardized and useful test.
DIAGNOSTIC TESTS:					
Botel Reading Inventory Follett Educational Corp.	(Group test except for word recognition) Phonics, word opposites, reading and listening	1-12	1961-70	varies	Data lacking on norms, reliability and validity; but may be useful as informal test to determine instructional levels.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Classroom Reading Inventory (Silvaroli) William C. Brown Book Co.	(Individual test except for spelling) Word recognition; independent, instructional and frustration reading levels; hearing capacity level	2-8	1965-69	varies	When judiciously used, a most valuable adjunct to a total reading program.
Durrell Analysis of Reading Difficulty Harcourt Brace Jovanovich	Oral and silent reading; listening; word recognition and analysis; naming, identifying and matching letters; visual memory of words; sounds of words and letters; spelling; handwriting	1-6	1955	30-90	Complete analysis; clear directions; complete and useful check lists; most useful with less severe cases.
Gates-McKillop Reading Diagnostic Tests Bureau of Publications, Columbia University	Oral reading test, word lists, phrase recognition, syllabication, letter names and sounds, visual and auditory blending, spelling (28 scores in all)	1-8	1962	30-60	Very inclusive; satisfactorily standardized; well-established test; but needs sophisticated judgment to use.
Gilmore Oral Reading Test Harcourt Brace Jovanovich	Accuracy, comprehension, rate of oral reading	1-8	1968	15-20	Among best standardized tests of accuracy in oral reading; usefulness of comprehension and rate scores is more questionable.
Gray Oral Reading Test Bobbs-Merrill	Oral reading	1-16	1963	varies	Welcome addition to the limited number of reasonably satisfactory oral reading tests. Doesn't measure comprehension.
Standard Reading Inventory (McCracken) Klamath Printing Co.	Recognition vocabulary, oral reading accuracy, oral and silent comprehension and speed, listening	1-7	1966	30-120	Not standardized, cumbersome manual and complex scoring; but reliability and validity data available and attractive materials.
Pupil Placement Tests Houghton Mifflin Co.	Word recognition, oral sight reading, timed silent reading, listening subtests. To determine independent, instructional, frustration and potential reading levels	1-9	1970	varies	

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Reading Miscue Inventory (Goodman & Burke) The Macmillan Co.	Psycholinguistically analyzes why miscues are made as reader extracts meaning; qualitative as well as quantitative analysis	All levels	1972	varies	
Roswell-Chall Diagnostic Reading Test of Word Analysis Skills Essay Press	Consonant and vowel sounds and combinations, syllabication	2-6	1959	5-10	Quick but limited assessment.
Spache Diagnostic Reading Scales California Test Bureau/ McGraw-Hill	Word recognition, oral and silent reading, phonics	1-8 (retarded readers, 9-12)	1963	20-30	Gives considerable information, but standardization leaves much to be desired.
Sucher-Allred Reading Placement Inventory Brigham Young University Press	Word recognition and reading paragraphs, screening for placement	1-9	1971	20	
Wide Range Achievement Test Guidance Testing Associates	Reading, spelling, arithmetic	1-12	1965	20-30	Overclaiming manual; perhaps useful for quick estimate of general level of ability (to determine appropriate level of a survey test).
SPECIAL TESTS:					
Adult Basic Reading Inventory Scholastic Testing Services	(Group test) Sight words, sound and letter discrimination, word meaning (reading and listening), context reading	Functionally illiterate adolescents and adults	1966	60	Adult norms lacking; perhaps informal methods of diagnosis more useful for skilled reading specialists.
ANPA Foundation Newspaper Test Cooperative Tests and Services	(Group test) Simulated newspapers to test newspaper reading ability	7-12	1969	40-50	Norms and reliability data based on prepublication forms.
California Phonics Survey California Test Bureau/ McGraw-Hill	(Group test) Vowel and consonant confusions, reversals, configuration, endings, negatives-opposites-sight words, rigidity	7-16	1963	40-45	Useful to identify weaknesses in phoneme-grapheme understandings, but not reasons for misunderstandings.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Doren Diagnostic Reading Test of Word Recognition Skills American Guidance Service	(Group test) Letter recognition, beginning and ending sounds, whole word recognition, words within words, speech consonants, blending, rhyming, vowels, sight words, discriminate guessing	1-9	1964	180	More valuable as individual rather than group test, but useful in the hands of a skilled teacher.
Huelsman Word Discrimination Test Miami University Alumni Association	(Group test) Use of length, external design and configuration in perceiving words. Can give approximate reading level	1-8	1958	15	No manual; no data on reliability.
Iowa Every-Pupil Tests of Basic Skills, Test B Houghton Mifflin	(Group test) Map reading, use of references, use of index, use of dictionary, graphing	3-9	1947	55-90	Well-constructed test, using life-like samples.
Iowa Tests of Educational Development Science Research Associates	(Group tests) Test 5: Ability to interpret reading materials in the social studies Test 6: Ability to interpret reading materials in the natural sciences Test 7: Ability to interpret reading materials in literature Test 9: Use of sources of information	9-12	1942-61	70 70 60 35	Well-designed battery of widely used achievement tests with good norming and statistical information; however, length of time required to take the tests and the lack of uniqueness in these reading tests warrant close consideration.
McCullough Word-Analysis Tests Personnel Press	(Group test) Initial blends and digraphs, phonetic discrimination, matching letters to vowel sounds, sounding whole words, interpreting phonetic symbols, syllables, root words	4-6	1962-63	70	Best single instrument for assessing mechanical aspects of word analysis. Can identify specific difficulties interfering with higher order cognitive processes.
Minnesota Speed of Reading Test for College Students University of Minnesota Press	(Group test) Speed in reading History, Geography, Economics, Government, Psychology, Education, and Science	12-16	1936	6-15	Inadequate manual, but test has considerable merit.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Purdue Reading Test for Industrial Supervisors University Book Store, W. Lafayette, Indiana	(Group test) 14 reading passages from industrial material with 38 multiple-choice test items.	12+	1955	35	Well-constructed test, but a simple vocabulary test could do the same job.
RBH Scientific Reading Test Richardson, Bellows, Henry & Co.	(Group test) Paragraphs from scientific disciplines with multiple-choice questions. For employees in technical companies.	12+	1950-69	60-65	Needs more evidence of validity; unrealistic paragraph samples; poor typography and inadequate manual.
Reader Rater with Self-Scoring Profile Better Reading Program	(Individual test) Speed; comprehension; reading habits; reading for details, inferences and main ideas; adjusting speed; summarizing, skimming, recall of information; speeded and unspeeded vocabulary	10-12	1965	60-120	No data on reliability; no norms.
Reader's Inventory Educational Developmental Laboratories	(Group test) Reading interests, attitudes, habits, visual conditions, background, expectations in reading	9-16	1963	10-20	Useful for inexperienced teacher; manual gives interpretations of and suggestions for particular problems.
Reading Adequacy "READ" Test: Individual Placement Series Personnel Research Associates	(Group test) Reading rate, percent of comprehension, corrected reading rate. For adults in industry.	12+	1966	10-15	Yields quick estimate of reading speed, but needs more evidence on reliability and validity.
Reading Progress Scale Revrac Publications	(Group test) Evaluates progress in reading: 4 paragraphs needing completion by choosing between pairs of test words	1-12	1971	15	Reliability and validity all right; test measures ability to decode, not necessarily understanding.
Reading Versatility Test Educational Developmental Laboratories	(Group test) Rate, comprehension, skimming, scanning	5-16	1968	40-50	Poor test; dubious interpretations suggested.

Test and Publisher	What It Measures (usually subtests)	Levels (grades)	Date of Publication or Latest Revision	Time (min.)	Brief Resume of Evaluation
Robinson-Hall Reading Tests Ohio State University Press	(Group test) Reading ability for art, geology, history and fiction: Rate and comprehension measured	13-16	1949	15	Useful for obtaining in a reasonable length of time measures of differences in reading performance in different subjects.
Survey of Study Habits and Attitudes Psychological Corporation	(Group test) Efficiency, promptness, attitudes towards teachers, co-educational objectives	7-14	1967	20-25	Good teaching aid for teachers and counselors; useful to frank and motivated students.
Test on the Use of the Dictionary Reading Laboratory and Clinic, Univ. of Florida	(Group test) Pronunciation, meaning, spelling, derivation, usage	9-16	1963	30-40	No data on reliability; tentative norms.
Tests of General Educational Development American Council on Education	(Group test) Test 2: Interpretation of reading materials in the natural sciences. Test 3: Interpretation of reading materials in the social studies. Test 4: Interpretation of literary materials. Used for candidates for high school equivalency certificates. *Special editions for the blind and partially sighted.*	9-16	1944-70	120	Superior tests, lacking some statistical data; itemized scores would appear desirable, but chief question is whether these tests contribute information not already obtainable from tests of intelligence and of general reading ability.
Tests of Readi Inter-American Se ies Guidance Testing Associates	(Group tests in English and Spanish) Vocabulary, comprehension	7-13	1967	50	Could be useful in measuring vocabulary and comprehension of students entering U.S. schools from Spanish-speaking countries.
Watson-Glaser Critical Thinking Appraisal Harcourt Brace Jovanovich	(Group test) Inference, recognition of assumptions, deductions, interpretation, evaluation of arguments	9-16+	1964	50-60	Useful instrument to understand and appraise critical thinking.
Wide Range Vocabulary Test Psychological Corporation	(Group test) Reading vocabulary. Can give quick estimate of intelligence.	3-12+	1945	10	Norming and reliability information incomplete, but useful screening device.

- *What steps can the teacher take to develop local norms?*
- *How can local norms be used to benefit instruction?*

IT'S EASY TO MAKE LOCAL NORMS

Edward Fry
Rutgers University

Teachers sometimes think that you have to have a computer, or at least a statistician, to make local norms. They are wrong. Almost anyone can quickly learn to make local norms, and you do not need any statistics, computers, or even adding machines. If you can count and have a piece of paper, you have all you need.

There are many reasons for making local norms. Standardized tests usually give only national norms and might give only part of the information you want in your school or district. Informal tests written by teachers, criterion referenced tests, and all types of skills tests to measure objectives might not have any norms at all. It is useful to have local norms to see how an individual student ranks in comparison to his peers. It might be important for the teacher, the supervisor, or the child to know that he moved from the fourteenth percentile to the sixty-fifth percentile after instruction.

A *percentile* tells how a student compares with a standardization or norm group. A *percentage* is almost the same as a raw score; it tells only what percent of the total possible items a student got right.

The trouble with raw scores, which are the scores on most teacher-made tests and criterion referenced tests, is that they are determined by the test author alone. If the author says that 90 percent is "passing" it is often based on nothing but the author's subjective judgment. What if the author is wrong, and it is almost impossible for any child to get 90 percent? Or if any-

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body, without even studying, can get 90 percent of the raw score? Normed tests attempt to eliminate this difficulty by comparing the student with his peers. In many respects, it can be much fairer to the student than an authority's judgment.

To be really fair you must ask, "With which peers do I compare this student?" Most published standardized tests attempt to use children all across the United States from a similar age group. This is one useful comparison, but it has some real pitfalls. It includes regional differences, class differences, ethnic differences, home influence differences, curriculum differences, differences in school philosophy and emphasis, but these differences are often submerged by the "majority." If phonics is not stressed or taught much in a local school, why should students be penalized by getting low phonics scores in national norms? It is more useful to know that Juan is in the top 20 percent of his class taking a reading test in English than that he is in the bottom half nationally.

If you are convinced that local norms might be useful in measuring achievement or progress, here is how you make them. You can use raw scores (the number of questions answered correctly) on either a formal published test or a nonstandardized test such as one a teacher or curriculum committee made up. It will not make any difference if the test is a little too hard to a little too easy for the group—local norms adjust for that. You must get a range of scores, however, so that some students do better than others, and so there are not extremes at the top or bottom of the test score range.

Start with an easy example. We will assume that you have 100 students in your fifth grade, and you want local norms for the fifth grade on a test. You administer a reading test which has fifty items; the lowest student gets fourteen right and the best student gets forty-nine right, so the range of scores goes from fourteen to forty-nine.

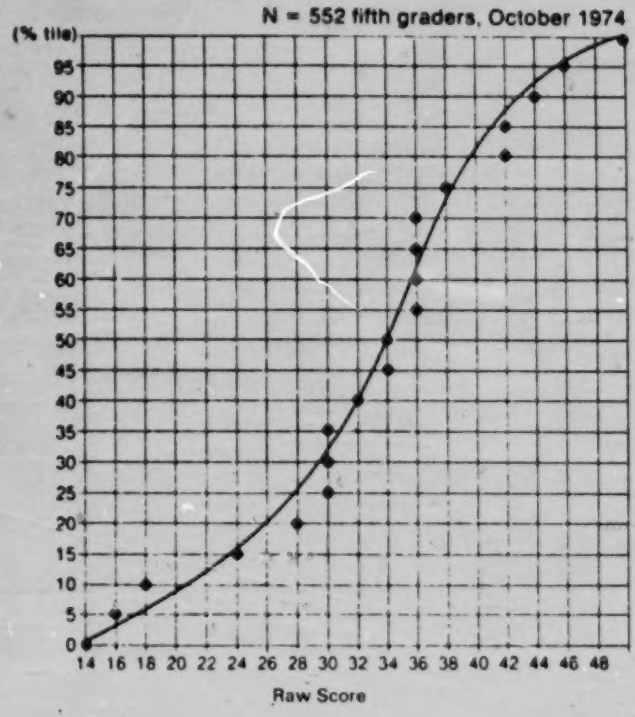
1. Sort the answer sheets so they are in order of raw scores: fourteen on the bottom and forty-nine on top. In the middle of the range, a number of students might have received the same raw score of thirty-six.

2. Label a sheet of graph paper so that along the verticle axis the lines are numbered from 0 to 100.

3. Label the columns with the range of raw scores, in this case from fourteen through forty-nine.

4. To plot each score on the graph, the first score would be represented by a dot at the intersection of line one and column fourteen; the second paper (which had a score of sixteen) would be at the intersection of line two and column sixteen; the third paper is plotted on line three, and so on. If you are in a hurry, you can merely plot every fifth paper and not lose much accuracy. What you should end up with is a group of dots which more or less form an S-shaped curve on the graph paper. (See figure.)

Local Norm Graph Converting
Raw Score to Percentile
XYZ Reading Test
Form A



To find the percentile for any student enter graph with his raw score and read percentile off left axis. A raw score of 34 places student at 50th percentile in comparison with the norm group of fifth graders.

5. Draw a curved line, which mathematicians call "smoothing the curve," so that it seems to go through the average of dots. It will actually go through some dots, but just above or below others. Do not bend your curve so that it goes through every dot. It must be basically smooth without bumps and sags. Usually it will have a slight "S" shape. This, incidentally, is a very sound mathematical procedure; doing it graphically is easy while doing it by formula is very hard. After you have penciled in your curve, you might look at it from a distance, make a few adjustments, get rid of irregularities, and finally ink in the finished curve.

6. Your local norms are ready for use after labeling the vertical colum (1 to 100) "Percentiles."

Use of Nomograph

To find a percentile with a raw score of forty, you go to the column above the raw score of forty, see where it hits the curve, then read the percentile across from that point, which is eighty-one according to the chart.

This curve on the graph paper is called a nomograph, and for most practical purposes, it is just as accurate as a table of numbers which convert raw scores into percentiles which are found in the typical test manual.

The trick of this whole thing is not drawing the curve, but in selecting the norm group. It should be representative and as big as possible of that representative population. If, for example, you have 552 fifth graders, you should put all the answer sheets in a pile, shuffle them as well as possible, then randomly draw out 100 papers to plot. You can, of course, make local norms with less than 100. You will not get quite as stable a norm base but, in many instances, it might be much better than national norms for your purposes to see how your own individual children do.

Local norms can be made each year or the same graph can be used for several years if you continue to use the same test. They can greatly aid the reading teacher, administrators, or classroom teachers in using and interpreting reading test scores for published standardized tests, criterion referenced tests, or locally made tests.

SELECTING INSTRUCTIONAL MATERIALS

Selecting appropriate content area instructional materials becomes more complex when student differences in reading and study skill status are revealed through assessment. In order to select appropriate instructional materials, the purpose of these materials must be placed in perspective. The primary emphasis must always be on the content to be learned—the information and concepts necessary for students to achieve content area learning objectives. The instructional materials through which these content area objectives are pursued are means to this end. However, there is no disservice done to students if content area objectives are pursued through instructional materials which accommodate the range and diversity of students' reading and study skills development. By providing the information required for content area learning, while encouraging the development of the reading and study skills necessary to achieve this learning, instructional materials become learning devices, and not simply depositories for content.

In this section, Daugs explores the concept of multilevel instructional material as it pertains to the teaching of science. Implications can be drawn clearly for other content areas as well. In the second article, Fry describes and rationalizes his easily used readability formula and, in doing so, provides valuable insights into the measurement of reading difficulty.

- *How does the multilevel approach accommodate student differences in reading ability?*
- *How can concepts be taught using the multilevel approach?*
- *How can student learning be evaluated when using the multilevel approach?*

WHAT PRICE SUCCESS, MULTILEVEL SCIENCE

Donald R. Daugs
University of Victoria

Most science curricula are centered around one textbook. Teachers complain that many students cannot read assigned materials. The complaint is valid. Marksheffel (1966) reports that the range between bottom and top reading levels will average six to nine grades at the high school level. In an unpublished study, Daugs (1968) indicates that over 50 percent of students using seven current junior and senior high textbooks were unable to read at an instructional level as determined by an informal reading inventory.

Two Solutions

There are two alternative solutions to the above dilemma. A curriculum can be designed that requires no reading or the reading needs of the pupils can be met.

Some elementary science curricula have gone in the direction of requiring no reading. The BSCS materials, *Me Now*, written for educable mentally retarded eleven to thirteen year olds, are designed so that, "Ideas must be developed without the necessity for reading" (BSCS 1970).

The concepts of science cannot be developed effectively by auditory stimuli only. A good example of this was observed in a high school biology class. A student teacher had introduced the days' lab activity on enzymes. The enzyme of interest was diastase. The student teacher mentioned the

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word once. Late in the lab period, in circulating around the room, I overheard a number of students talk about the enzyme "distaste." (They had heard diastase once. The students had never seen it written down by the teacher nor in print.) Given limited language development skills, it is not surprising that the "level of scientific literacy" (Daugs 1971b) of our high school graduates is at the distaste level.

The *Me Now* materials beg the problem by introducing new vocabulary and concepts by visual means (writing vocabulary on the board), but provide no reading or writing experience. An attempt is made to repeat new words verbally.

A good example of inadequate vocabulary development was observed by this writer in viewing a videotape of experimental use of the *Me Now* materials. Students were using Benedicts' solution for a "sugar tester." The term students were to have used was sugar tester, but the teacher had mentioned Benedicts' solution. After the activity, the teacher asked the class how to test for sugar. A student replied, "Put in the benediction."

The teaching of science concepts and vocabulary needs more than a blessing. An obligation exists to meet the communication needs of all pupils. The alternative to no reading is to supply students with readable textbooks. The reading needs of all students cannot be served out of one textbook.

Multilevel Materials

Administrators are often hesitant to initiate a multitext approach due to supposed increased cost. This is not a valid assumption. The slight increase is balanced by student benefit. If a teacher is using one textbook for thirty students, ten textbooks at each of three reading levels will cost no more.

Publishers have been hesitant to publish textbooks at different levels of reading difficulty; however, wide ranges of difficulty exist in all science disciplines when various publishers are considered. At the high school level, biology textbooks are available that treat similar topics ranging in reading difficulty from grade seven level through college level. If textbooks are chosen at three levels of reading difficulty for a given classroom, the reading needs of the students can be better served than if one textbook is used.

Student assignment to reading level should be done by topic, rather than for an entire textbook. Two convenient instruments are available to determine which students are to be assigned to a particular reading level. These instruments are the group informal reading inventory and the cloze procedure.

The group informal reading inventory is used primarily as a quick screening device to determine which students cannot read assigned materials. The inventory is developed by selecting a passage of about 350 words from a given unit in each of the textbooks to be used. Care must be taken to select

passages not predicated on preceding material. Ten questions are developed for each passage. These questions should be approximately one-third fact recall type questions, one-third vocabulary type questions, and one-third inferential type questions (Marksheffel, 1966).

Students read the passages directly from the textbooks. The inventory should commence in the text that is closest in reading difficulty to the grade level of the class. After the reading of the passage, the students are given the ten comprehension check questions. If a student can answer 70 percent of the questions, it can be assumed that the student can read the text profitably. If the score is 50 percent or less, the student will be frustrated by the materials (Betts, 1946; Marksheffel, 1966). Students scoring under 70 percent should be given an inventory for a lower level textbook. Students scoring 70 percent or over should have the opportunity to take an inventory for a text of a higher level of difficulty. The teacher will still have the problem of deciding what to do with the students not scoring 70 percent on the lowest level of the materials.

The cloze procedure is of relatively recent origin. Cloze readability tests are made by deleting every fifth word from a passage. The deleted words are replaced by underlined blank spaces of a uniform length. The tests are then mimeographed. For the purpose of student placement with a multilevel textbook approach, cloze tests are made by unit from passages of 350 or more words from each of the textbooks. Students are instructed to write in each blank the exact word they think was deleted. The only correct response is the exact word deleted (misspellings excepted).

Researchers Bormuth (1967) and Coleman (1966), using the cloze procedure, have adopted the criterion comprehension level of 44 percent correct responses as corresponding to the traditional 75 percent comprehension level (Thorndike, 1917; Betts, 1946; Marksheffel, 1966).

Students should be given the cloze test from the textbook closest to the grade level of the class. Those students scoring 44 or more can profitably read that text. They should have the opportunity to attempt to read a text of greater difficulty. Students scoring less than 44 percent should take a cloze test from a lower difficulty textbook.

After students understand the testing purpose and procedures for the method selected, students can self test and self place themselves for each unit. Using three textbooks and either of the above testing procedures will result in a placement distribution of students, with a few students below the lowest level of the materials, slightly over one-third at the lowest level of the materials, slightly under one-third at grade level, and the remainder at the highest level of textbook difficulty (Daugs 1970a). If textbooks are ordered according to these guidelines, with a few extra at each level of difficulty, the reading needs of the students can be better met than if one textbook is used.

Teaching Strategies

Use of the multitextbook approach dictates that teaching strategy incorporate concepts common to all levels of textbooks. Concepts unique to each level of difficulty provide each ability student with his special contribution to classroom experimentation and discussion.

Existing textbooks in all of the science disciplines generally treat the same major concepts, whether written at the seventh grade reading level or the twelfth grade level. They do vary in types of experiments and particulars attributed to a type of approach. A good example of this is found in the various versions of BSCS materials. To use the green, yellow, and blue versions of BSCS biology simultaneously in a classroom would admittedly be a big task; however, it would provide an interesting synthesis of biology. The teacher who indicates this approach is impossible should spend some time observing the varied activities that go on in the elementary classrooms. The best example of this approach observed by this writer was in fourteen elementary classrooms using SRA's *The Earth's Atmosphere*, in which students use science materials at five levels of difficulty.

Evaluation

The need to evaluate student progress and traditional requirements for letter grades dictates that some means be used to measure gains. Experience has shown that students object to different tests being given by difficulty level. Students prefer one test for all. Tests must be readable, i.e., written at a reading level comparable to the lowest reading level of the textbooks used in the classroom. Test items should be made up of questions unique to each reading level, questions common to all reading levels, and inferential type questions not found in any of the materials.

Use of a pretest/posttest finds favor with students. When grades are based on total gain, rather than the highest score on a unit test, the students at the lowest levels of material have as great a chance to earn an *A* as the traditional *A* student. To alleviate the potential problem of the better student underachieving on the pretest, it is desirable to set a criterion pretest score at which the student is excused from the unit under study. There is no need for an individual to suffer through a unit if he already comprehends the material. These students become your lab assistants or do enrichment activities.

Where do you stand, reading or no reading? If you require any reading, is there only one textbook? What are you doing to the over 50 percent of the students who can't read the assigned materials? Can you afford to take the time needed to allow more of your students to succeed? What prices are you willing to pay to allow all of your students the chance to experience success?

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- *How can Fry's readability formula be used to aid in materials selection?*
- *What assumptions underlie readability formulas, and what cautions are implied for their use?*

A READABILITY FORMULA THAT SAVES TIME

Edward Fry
Rutgers University

The purpose of this article is to present a revision of the Readability Graph together with directions for its use and to present some validity data which compares readability scores on several different formulas.

Readability formulas have been around for many years and a good deal has been written about them. For the reader who wants a more detailed overview of the topic, books by Klare *(9)*, Chall *(2)*, and Dale *(3)* are recommended. Yet, the topic seems to hold fresh interest for each semester's load of graduate students and for some serious researchers. Though readability formulas are used by some teachers, some librarians, and some publishers, their number is all too few. Perhaps the sheer time it takes to apply these formulas causes them mostly to languish in term papers and occasional magazine articles.

The Readability Graph was first developed when I was in Uganda and simplicity was a prime prerequisite. The original version appeared in print that was read mostly by British readers *(6, 7)*, and hence it is not too well known in the United States. Perhaps the fact that it was originally geared to a set of African readers has caused it to be accepted more by the emerging nations.

The Readability Graph presented in this article is aimed at the United States educational scene. The grade level designations are for America; the simplicity is a need I find universal.

Adapted from *Journal of Reading*, 11 (April 1968), 513–516, 575–578.

Perhaps simplicity may best be measured in printed pages. The Dale-Chall formula takes about eighteen printed pages while the Readability Graph takes only about two. The SRA formula is relatively simple, but it requires a plastic gadget which costs several dollars and it has only four difficulty designations.

Directions for Using the Readability Graph

1. Select three one-hundred-word passages from near the beginning, middle, and end of the book. Skip all proper nouns.

2. Count the total number of sentences in each hundred-word passage (estimating to nearest tenth of a sentence). Average these three numbers.

3. Count the total number of syllables in each hundred-word sample. There is a syllable for each vowel sound; for example: cat (1), blackbird (2), continental (4). Don't be fooled by word size; for example: polio (3), through (1). Endings such as -y, -ed, -el, or -le usually make a syllable, for example: ready (2), bottle (2). I find it convenient to count every syllable over one in each word and add 100. Average the total number of syllables for the three samples.

4. Plot on the graph the average number of sentences per hundred words and the average number of syllables per hundred words. Most plot points fall near the heavy curved line. Perpendicular lines mark off approximate grade level areas.

Example

	Sentences per 100 words	*Syllables per 100 words*
100-word sample Page 5	9.1	122
100-word sample Page 89	8.5	140
100-word sample Page 160	7.0	129
	3)24.6	3)391
Average	8.2	130

Plotting these averages on the graph we find they fall in the fifth grade area; hence the book is about fifth grade difficulty level. If great variability is encountered, either in sentence length or in the syllable count for the three selections, then randomly select several more passages and average them in before plotting.

How Accurate Is the Score?

If you want a nontechnical answer, it is "probably within a grade level."

The problem of validity is difficult. First of all, there are no rigorous standards of just what fourth grade difficulty is as opposed to fifth grade difficulty. There seems to be some loose sort of agreement between publishers and educators, which is based on experience and perhaps a little

on test data, as to what grade level designations mean. However, even standardized test data are not exact. Anybody who has used an old reading test, say the 1957 California Reading Test, on his class, then used the 1965 Stanford Reading Test on exactly the same class at nearly the same time, can tell you that the class mean reading score expressed in grade level is quite different. In general, newer tests are more difficult or, in other words, a ninth grade student today reads better than a ninth grade student in former years.

The Dale-Chall is partly validated on teacher and librarian judgments of material difficulty and partly by correlation with other formulas *(2)*.

Hence the problem of validity is complicated by trying to determine grade level when grade level won't stand still and when subjective "judgments" are about as good a standard as can be found. There is a partial way out of this validity dilemma, however, and that is by using relative ranking. For example, you can see if a formula ranks a given group of books in the same order as do other formulas.

You can also determine reading difficulty of the books by looking at the mean comprehension scores of a class who has read the books. In using comprehension scores you run into the problem of equal difficulty of comprehension tests (is the test for Book A easier than the test for Book B?), but with all its faults, comprehension tests give us a somewhat more objective method of ranking the difficulty of books than just "subjective teacher judgment." The comprehension test method also gives us a completely different method than simply comparing Formula 1 with Formula 2.

Grade level designations were determined by simply plotting lots of books which publishers said were third grade readers, fifth grade readers, etc. I then looked for clusters and "smoothed the curve." After some use and correlational studies the grade level areas were adjusted. The grade level areas didn't come out too even, but that is part of the trouble with working with real data. The fact that there is much less graph space for grades four and five than for grades six and seven is interesting. It may be an inaccuracy in our data or it may mean that fourth and fifth grade materials don't change in difficulty as much as sixth and seventh grade materials and/or students' reading abilities. In any event, other formulas such as Dale-Chall and SRA don't attempt to designate levels only one grade apart. (Dale-Chall gives two grade designations such as 5-6 or 7-8 and SRA gives even broader designations.)

Results of Comparison Investigation

The Readability Graph presented in this article ranks books on a hard-to-easy continuum about as well as Dale-Chall and Flesch and SRA formulas (see Tables 1 and 2). It also seems to give about the same grade level

TABLE 1

RELATIVE RANKINGS OF TEN BOOKS BY READABILITY METHODS AND STUDENT COMPREHENSION SCORES

Book Title	*Fry*	*SRA*	*Botel*	*Dale-Chall*	*Flesch*	*Student Comp.*
Light in Forest	2.5	2.5	1.0	1.5	2.5	1.5
Mice and Men	2.5	2.5	7.0	3.5	2.5	1.5
The Pearl	2.5	2.5	2.5	1.5	2.5	3.0
Shane	2.5	2.5	2.5	3.5	2.5	4.0
Death Be Not Proud	6.5	7.0	7.0	6.0	6.0	5.0
Moon Is Down	5.0	5.5	4.5	6.0	6.0	6.0
To Kill A M'bird	6.5	5.5	4.5	6.0	6.0	7.0
Tale of Two Cities	8.0	9.0	9.0	10.0	9.0	8.0
Silas Marner	9.5	9.0	10.0	8.5	8.0	9.0
Act One	9.5	9.0	7.0	8.5	10.0	10.0

designations (see Table 3). The Dale-Chall ranks several books a little harder than the Readability Graph but perhaps the fact that the Dale-Chall was developed about twenty years ago accounts for this. At least it is hopeful to think that present sixth and ninth graders can read a little better.

The data in Tables 1, 2, and 3 were obtained from the master's thesis of Andrew Kistulentz *(8)*, who was one of my advisees at Rutgers University. The ten books were used in his tenth grade English classes and he constructed comprehension tests composed of three parts: true-false,

TABLE 2

INTERCORRELATIONS OF FIVE READABILITY METHODS RATINGS AND STUDENT COMPREHENSION ON TEN BOOKS*

Readability Method	*Fry*	*SRA*	*Botel*	*Dale-Chall*	*Flesch*	*Student Comp.*
Fry	—	.98	.78	.94	.96	.93
SRA	.98	—	.81	.95	.98	.90
Botel	.78	.81	—	.82	.73	.64
Dale-Chall	.94	.95	.82	—	.95	.90
Flesch	.96	.98	.77	.95	—	.94
Student Comp.	.93	.90	.64	.90	.94	—

* A rank order correlation of .56 is significant at the .05 level and .75 is significant at the .01 level.

TABLE 3

MEAN GRADE PLACEMENTS AND MEAN STUDENT COMPREHENSION SCORES ON TEN BOOKS

	Grade Placement Scores					*Comprehension*
Book Title	*Fry*	*SRA*	*Botel*	*Dale-Chall*	*Flesch*	*Raw Score %*
Light in Forest	5	5	4	5	6	92
Mice and Men	5	5	8	6	6	92
The Pearl	5	5	5	5	6	90
Shane	5	5	5	6	6	89
Death Be Not Proud	7	7	8	7	8	88
Moon Is Down	6	6	7	7	8	87
To Kill A M'bird	7	6	7	7	8	86
Tale of Two Cities	9	10	9	11	11	82
Silas Marner	10	10	10	10	10	79
Act One	10	10	8	10	12	75

Note: Single grade level scores from formulas yielding grosser designations were obtained by averaging several samples and rounding to the nearest whole number.

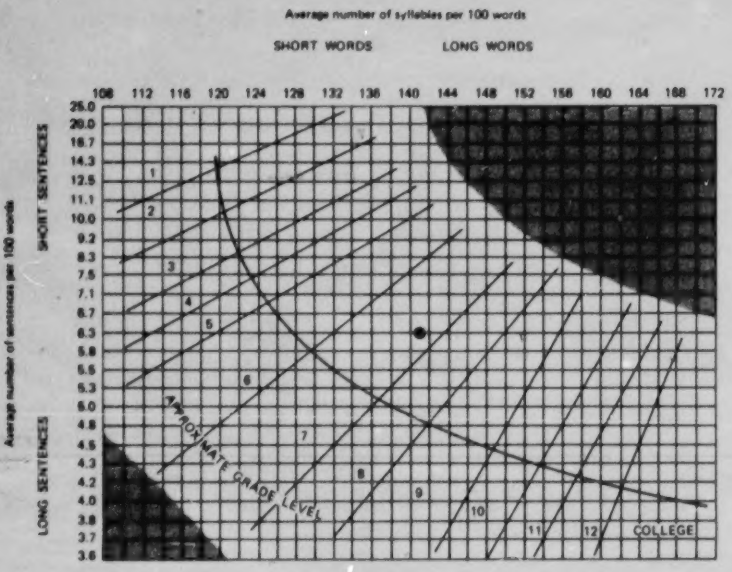
multiple choice, and short paragraph essay. He then did rank order correlations between the Dale-Chall *(4)*, Botel *(1)*, Flesch *(5)*, and SRA *(12)* readability formulas and the comprehension tests. Most of the formulas correlated quite highly among themselves and with the comprehension tests.

The Dale-Chall formula correlated quite highly with the Readability Graph (.94). The high correlation with the Flesch formula (.96) was expected as the inputs are basically the same, only instead of mathematical computations, the Graph has plotting to yield levels. The SRA formula also has the same inputs of syllables and sentence length, but uses a plastic wheel for an analogue (slide rule type) device to compute level (correlation .98) that yields four gross levels only *(12)*. The Graph yields 13 grade levels. My only explanation as to why the Botel formula did not correlate better (.78) with anything else is that it takes into account only vocabulary difficulty and completely ignores structure complexity (which is usually reflected in sentence length).

On a lower level, the Readability Graph has been compared with the Spache formula in a study done by Martin Kling and Clement Haimowitz for the Boy Scouts of America *(10, 11)*. They concluded that "there was a very close agreement between the readability level according to both formulas. . . . It is probably more efficient to use the Fry Readability Formula at the primary grade level" *(10)*.

GRAPH FOR ESTIMATING READABILITY

by Edward Fry, Rutgers University Reading Center, New Jersey



Directions for Working Readability Graph

1. Randomly select three sample passages and count out exactly 100 words beginning with a beginning of a sentence. Don't count numbers. Do count proper nouns.
2. Count the number of sentences in the hundred words estimating length of the fraction of the last sentence to the nearest 1/10th.
3. Count the total number of syllables in the 100-word passage. If you don't have a hand counter available, an easy way is to simply put a mark above every syllable over one in each word, then when you get to the end of the passage, count the number of marks and add 100.
4. Enter graph with average sentence length and number of syllables; plot dot where the two lines intersect. Area where dot is plotted will give you the approximate grade level.
5. If a great deal of variability is found, putting more sample counts into the average is desirable.

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Conclusion

Readability formulas have had a widespread, long-term interest among professionals in the reading business. However, their lack of use in broader educational circles may be due to excessive working time and difficulty in computing some existing formulas. The Readability Graph is presented as a faster and simpler method of determining readability. It correlates highly with the Dale-Chall, SRA, Flesch, and Spache formulas. My only hope now is that it be widely used by teachers, librarians, and publishers as one important, objective method of determining readability.

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Section Three

GENERAL STRATEGIES

How can general instructional strategies be developed which will encourage student learning? The key lies in actively engaging students in the learning process. Appropriate instructional materials need to be implemented through appropriate instructional strategies, and these strategies must be student-centered. They must directly involve students in the learning process and, at the same time, provide positive guidance and direction to further independence in learning.

The articles in this section provide concrete examples of instructional strategies which actively involve students in learning through reading. This involvement is achieved through differentiated instruction combined with flexible and varied classroom organization. Earle and Sanders give specific suggestions for individualizing content area reading assignments within the classroom. Hansell develops a rationale and specific steps for prereading activities. Questioning as an instructional tool is reconsidered by Herber and Nelson, and simulation strategies are advocated as a more realistic classroom practice. Finally, Earle and Morley provide specific direction in how to vary learning tasks to allow greater student and teacher freedom in the classroom.

• *What six specific procedures are described for individualizing reading assignments?*

INDIVIDUALIZING READING ASSIGNMENTS

Richard A. Earle
McGill University
Peter L. Sanders
Wayne State University

Any teacher who has spent more than a day or two in the public school classroom knows that students, whether grouped homogeneously or not, represent considerable variation in ability to read required text material. The range of reading ability and the variety and difficulty of subject matter text are obstacles which can prevent effective interaction between the student and the text. Those students who are fortunate enough to have attained independence may need no special help. But what about the others? Is it "sink or swim"?

A short informal assessment of reading ability will reveal which students are less than successful in mastering their reading. Even more important are the observations of a sensitive teacher, one who feels that if an assignment is worth giving at all, differential amounts of assistance must be provided for certain individuals and groups within the class.

Individualizing subject matter assignments is an attempt to get away from regarding a class as a monolithic "they." It means providing enough help to ensure that each student will successfully master the required reading. It does not require individual preparation for each student in the class. Nor does it mean a different text for each individual. No one means should be singled out and used exclusively. In fact, various techniques may prove useful in different situations and in several combinations.

Adapted from *Journal of Reading*, 16 (April 1973), 550-555.

Levels of Sophistication

Not all students will find it possible to answer sophisticated questions requiring the application of meaning from subject matter reading. Some students might well profit from questions designed to identify and generalize relationships among particular facts or ideas. By the same token, poorer readers generally find it easier to locate and verify answers to specific factual questions, rather than questions requiring interpretation or application.

This suggests the first means of individualizing subject matter reading assignments. Given an important assignment, match question difficulty to the student's reading ability. Thus, each student can experience the satisfaction of mastery at some level of comprehension, while all the essential information is gleaned from the assignment. Postreading classroom discussion can be planned to ensure that the information gained by each can be shared by all.

One note of caution: It is tempting to "pigeonhole" students using this method. We have been greeted (by teachers who *thought* they were individualizing) with such statements as "These are my literal level kids, these are my interpretation level kids, and these are my application level kids." A permanent classification such as implied in this statement is not desirable. It may be detrimental to the child's learning, certainly to his continued reading growth in the subject matter classroom. Regarded as one means of adjusting the task to student abilities, however, teacher questioning at different levels can represent useful and constructive assistance.

Differential Structuring

One of the most useful techniques for differentiating subject matter reading assignments is to ask questions or give instructions which incorporate varying degrees of structure, according to the needs of different students or groups of students. *Structure*, in this case, means guidance built into the question itself. For example, a teacher whose guidance consists only of "Read Chapter 7 for tomorrow" is really saying to the students, "Some important questions about our subject matter are answered in this reading assignment, but I'm not going to tell you what questions they are. You find the answers, come in tomorrow, and in our discussion I'll let you know what the questions were. If your answers fit my questions, you will be a winner; if not, you lose."

Considerable guidance can be provided by a simple question; for example, "Read this assignment to find out such and such." While this at least provides students with some purpose for attacking the reading assignment, some students will have difficulty in locating and verifying such information,

particularly in a lengthy reading assignment. For these students, a somewhat higher level of structure is in order.

Our experience suggests that reacting to alternatives is, in fact, easier than generating alternatives. Therefore, questions can be structured with several possible answers, the student's task being to verify one or more of the alternatives provided. Depending on the student's need for structure, alternatives can be sophisticated statements representing application, generalization, or inference, each to be supported or refuted with evidence from the reading.

On the other hand, several important details can be included in a structured question, with the student being required to verify their literal existence in the text. In some cases, students who are unable to read well enough to comprehend material in paragraph and/or sentence form can be supplied with a list of single words to be verified or rejected in the light of a particular subject matter question. Combined with these techniques, even more structure can be provided by giving locational aid in the form of page and/or column number.

Some students who are overwhelmed by several pages of reading can succeed when the teacher indicates the paragraph (or even line number) where the information can be found. This approach—like most other elements of individualizing—depends on the difficulty the students are likely to have with a given assignment. It is interesting to note that some students who are labeled "nonreaders" have successfully read subject matter assignments when questions included a little more structure. Structuring a question differentially means providing, within the question itself, enough guidance to enable the student to be more certain of locating, identifying, and verifying essential information contained in a reading assignment.

Collaboration by Grouping

There is an old saying that "Two heads are better than one." This particular approach to individualizing rests on the tenet that, with some reading assignments, three, four, or five heads are better than one. The essential element of collaboration is teamwork—the sharing of information and skills in order to get the job done. Several forms of grouping allow the sort of team sharing that is the essence of group collaboration.

One is what we could call a "tutor" group, where one person who has a superior skill in reading can be teamed with one or more students who are not as effective. The tutor, with some direction from the teacher, might read portions of the assignment to the others, clarify directions, react to their answers, and generally provide needed assistance. In some cases, two readers of equal ability might help each other, combining information to arrive at a larger understanding than either could achieve alone. Another form

of grouping is "ability" grouping, where the class is divided into two or more groups representing different levels of reading performance.

This sort of grouping, while not recommended as permanent, is particularly useful when combined with the technique of questioning at different levels of comprehension. Still another form of grouping is "interest" grouping, where students are teamed to complete various tasks representing common interests.

Incidentally, most students, given the choice, will not select a task that appears too easy; rather, they will elect to do that which is both interesting and challenging.

Perhaps the most common form of useful collaboration in the subject matter classroom can be achieved by "random" grouping. In this form of grouping two or more students are teamed on the basis of any random means, such as their seating arrangement in the classroom. As with other forms of collaboration, the object here is to share skills and information. However, the most important element of random grouping is that it encourages an interaction among the students. In contrast to the teacher-led classroom discussion, random grouping provides each student time and opportunity to verbalize his findings, support his generalization, and question other students.

Students are sometimes uneasy or even amused by the prospect of collaborative effort. Certainly they have little opportunity for such sharing in many classrooms throughout their public school career! And the teacher may feel uneasy, perhaps equating group collaboration with cheating or improper teaching. However, two facts should be made clear regarding grouping: 1) Students *do* learn from each other by assisting or challenging their colleagues in active ways; 2) teachers, when freed from the total absorption demanded by the lecture, are able to help, stimulate, and evaluate students in individual ways. If you regard group effort as an integral part of individualized learning, your students will catch on very quickly. Collaboration on subject matter assignments is one effective way of improving learning, especially for the less effective reader.

Selecting Appropriate Material

In the ideal classroom each student operates with material that is suited to his instructional level. We know, however, that this ideal is rarely the case. Some subject matter simply cannot be presented at low levels of difficulty. In other cases, money is not available to buy published materials. Or a given textbook may be required by those who design the curriculum. The net result is that most content classrooms boast a single textbook, often too difficult for the student. This situation necessitates other methods of individualizing, such as mentioned in this article. Nonetheless, when cur-

riculum-specific materials of easier readability are available, they become another excellent means of providing each student in your class with the opportunity to master his reading assignment successfully.

Varying Assignment Length

In classrooms where coverage of the entire course takes precedence over student understanding, there is little opportunity to expect more of some students than others. However, some teachers feel that mastery of fewer understandings is more important than superficial coverage of large amounts of subject matter material. These teachers have found that yet another way to individualize reading assignments is to vary their length, that is, the number of understandings to be gained. Some students can handle lengthy assignments satisfactorily. We know, however, that others are completely overwhelmed by the prospect of ten or twelve pages of text. Hence, they avoid the pain of frustration and failure by refusing to do the assignment at all. For these students, reducing the reading assignment to manageable proportions often gives them more opportunity for success. For example, some may be directed to read only the most important sections of the material, perhaps even a single page. Others may experience success in selecting a few of the important ideas or descriptive terms. In extreme cases, poor readers could be asked to do no more than verify certain key words. This particular technique is especially useful in conjunction with the differential structuring of questions.

Varying Time Allowed

Many students need more time to complete required reading assignments. They might be more successful if given a few additional minutes (or hours) to complete the task. It is unfortunate that the usual public school organization—the forty-five minute period, the eighteen week semester, and the graded year—makes this sort of basic individual assistance very difficult. Nevertheless, the subject matter teacher can devise means for adjusting the time factor in reading assignments while retaining the necessary degree of guidance and control. Many sensitive teachers endorse deadlines firmly but not rigidly; they do not regard deadlines as sacrosanct. Sometimes a straightforward question, for example, "Would it be helpful if you had till tomorrow, or next Monday?" can guide the teacher in his decision. Surely it would do wonders for the student/teacher relationship by communicating the concern and flexibility that is the hallmark of the sensitive teacher. Students who finish an assignment may move on to other tasks, including the task of helping those who need additional guidance. It is important to note that additional time must often be combined with other types of assistance, as suggested in this article.

Using Nonprint Media

It is difficult (even dangerous) for reading specialists to suggest publicly replacing printed text with assignments that do not require reading. However, the underlying premise of this article and the major concern of most subject teachers is that mastery of the subject matter takes precedence over a student's reading development.

In point of fact, the teacher is expected to teach subject matter ideas and skills regardless of students' reading abilities. Even when the student receives separate expert reading instruction, increased reading ability is a long time coming. Therefore, when the student is severely handicapped, many important ideas can be communicated through other media, such as pictures, tapes, records, films, and filmstrips. Of course, we must face the fact that complete abandonment of required reading prevents the student from improving his reading ability. He becomes forever dependent on speech alone to gather and assess information in a given subject area. It therefore seems advisable to use other media as supplement rather than as replacement.

For example, material presented orally can often be accompanied by written questions structured to provide a maximum amount of guidance. Since the questions are in written form, they will require reading; hence, they represent elements integral to both subject matter mastery and continued reading growth. However, to the degree that reduction or abandonment of printed material is necessary to ensure student success, the technique can be effective in overcoming the obstacles presented by reading assignments.

Summary

This article has described several techniques for individualizing reading assignments in subject matter classes. The approaches mentioned herein do not represent a comprehensive list of suggestions. Nor are they all guaranteed to be equally practical or equally comfortable to certain teachers. Experience suggests, however, that the use of these approaches has provided many nonreaders with the help they needed to become successful readers—at least to some degree. That alone may be reason enough to give them a try!

• *What steps are recommended for planning prereading activities, and what teaching procedures are suggested?*

INCREASING UNDERSTANDING IN CONTENT READING

T. Stevenson Hansell
University of Delaware

Teachers in middle schools, junior high, and high schools are accepting, in increasing numbers, the fact that students cannot read their textbooks independently. "What they really need is to learn to read!" "He'd be much happier in the third grade where he belongs instead of here in sixth grade." These and similar comments are becoming increasingly common. Recognition of the problem has led to attempted solutions in too few classrooms.

It is to the credit of reading teachers at these levels that they have the hope, the desire, the understanding of how a single child learns, and the ambition to take on the task of teaching each student in school how to read well enough to handle his textbooks independently. Credit must also be given to content area teachers who provide instruction with alternate materials when they discover that some or all of the students in their classes cannot read their texts.

As reading teachers have been saying for years, students can be frustrated, irritated, and demeaned by being required to attempt tasks at which they cannot hope to succeed. Surely, an accurate reading level placement of second or third grade means that a student has a sight vocabulary of only 500 to 800 instantly recognizable words and a critically limited ability to deal with unfamiliar multisyllabic words. However, this real problem is compounded by the belief that standardized reading tests and readability formulas are exact measures and that the results they yield are so powerful

Adapted from *Journal of Reading*, 19 (January 1976), 307-310.

that teachers are unable to overcome a mismatch in these numbers. What is the real difference in ability to deal with a given passage between students who have fourth and sixth grade reading placement according to standardized tests? We simply don't know.

One way that test publishers have tried to communicate the inability to measure reading ability exactly is to report scores in percentile bands instead of grade levels. This practice must be commended for its honesty. An interesting by-product of reporting scores by range rather than point is that the total score becomes virtually useless to teachers. Information about a student must be sought from an item analysis of his answers, a task that requires more of a teacher's precious time.

Authors of readability formulas, too, have tried to communicate the inaccuracy of their form of measurement. "What I hope for," said Rudolf Flesch (1952), "are readers who don't take this formula too seriously. . . ." Jeanne Chall (1958) echoed these sentiments when she said, "the more mechanically a readability formula . . . is used in simplifying material, the smaller the effect on either comprehension or readership." In other words, both standardized tests and readability formulas are rough measures. Their numbers are inexact estimates.

We can see just how misleading such numbers may be when we compare the performances of college philosophy majors with mechanical engineers in understanding a technical description of the stress factors involved in constructing a bridge and a passage from *A Critique of Pure Reason* by Kant. This difference is caused not by the average number of words per sentence, not by the number of words which are not on a list, not by the number of syllables per hundred words, and not by a student's college board scores, but by the differences in the readers' background information. The engineering student knows more about physical stress and how it will be described before he begins to read, so he can understand what he reads more completely with less effort. The philosophy student in turn knows more about philosophy and how philosophers construct their arguments. In short, prior understanding eases reading.

Holmes and Smith (1973) have gone so far as to state that understanding or meaning identification precedes word recognition. Kenneth Goodman (1973) asserts that readers guess what meanings and words will occur by using their unconscious awareness of their language and external cues such as pictures. Terry Winograd (1972) demonstrated that knowledge of a restricted "world" as well as a knowledge of a logic and grammar were required to allow a computer to assign meaning to written discourse.

If understanding eases the reading task and if identification of meaning precedes word recognition, then all teachers may help students to read texts, articles, or books by helping them understand the content before they deal with the print. Such a strategy puts reading where it belongs, as one im-

portant tool for understanding the world. The problem of content teachers then becomes, in the words of an eighth grade teacher in Boston, one of "convincing the students that they know more than they think they do about my subject."

Prereading Activities

There are two general categories of prereading activities which address the problem of increasing understanding prior to dealing with print: teacher centered or student centered. Teacher centered prereading activities involve such techniques as introductory lectures, films, filmstrips, or videotapes, structured overviews (Earle, 1973), and teacher posed purposes, for example, "read to find five ways to produce more food." Student centered prereading activities require the students to think about, discuss, or guess about the content of the selection. Students then read to test their hypotheses. Student centered prereading activities include such techniques as the ReQuest procedure (Manzo, 1969) and the Content Directed Reading-Thinking Activity (Stauffer, 1975).

It is notable that, while teacher centered activities may be presented in texts and teachers' manuals and applied with little teacher preparation, the student centered prereading activities involve active teacher planning, decision making, and reaction. To plan a Content Directed Reading-Thinking Activity, for example, a teacher must:

1. Read passage to identify important concepts.
2. (Mentally) outline passage.
3. Decide how the passage is organized.
4. Design a key question which will elicit similar organization in students' minds (or use open questions: "How many questions can you think of about this passage?" "What do you guess some answers might be?").
5. Test key question by seeing if outline (step 2) answers the question.
6. Decide what initial information (titles, graphics, summary, and so forth) will help students to guess about content of passage.
7. Search for ways others have applied these concepts.
8. Design open ended questions that will encourage application.

Instead of simply asking students to read a passage, the teacher will ask students to examine the initial information and then ask the key question or alternative questions. After listing all guesses on the chalkboard, the teacher will ask students to read to find if the author included their guesses. Non-contributing students may be asked to select one or more guesses they can call their own. The teacher then asks students to evaluate their guesses in relation to the passage, clarify the key concepts, and ask open ended questions that encourage generalization and application.

Since the student centered activities rely completely on student responses, questions, and guesses, this category seems far more likely to con-

vince those students who participate that they do indeed know more than they think they do.

If student centered prereading activities convince students that they already understand the content and if understanding precedes word identification, then student centered prereading activities are a means for teachers to prevent student frustration caused by reading difficulty and to facilitate the development of content goals.

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- *How is student comprehension developed through simulation strategies?*
- *What procedures can the teacher adopt to implement simulation strategies in the classroom?*

QUESTIONING IS NOT THE ANSWER

Harold L. Herber
Syracuse University
Joan B. Nelson
State University of New York at Binghamton

The interrogatives "who, what, where, when, why, and how" are standard tools for the inquiring reader. A reader who can apply these interrogatives independently has the necessary skills for selecting pertinent information, for developing concepts by perceiving relationships within and across that information, and for synthesizing those concepts with others drawn from previous experiences.

These interrogatives are also basic to *questioning*, a teacher's most frequently used instructional tool. Most teachers regularly use questions to guide students' reading of text materials, believing this to be an effective way to help students acquire the information and ideas in the text. Some teachers are also aware that reading skills are implicit in the application of questions to text materials. These teachers have two objectives in their use of questions: 1) to teach the content in the text and 2) to teach the reading skills necessary for answering the questions being asked.

The validity of these two objectives seems obvious. However, a careful reflection on what these objectives assume, particularly the second one, raises serious questions about that validity. When one directs students' reading with questions, there is an implicit assumption that students already have the reading skills necessary for a successful response to those questions. If the students do indeed possess those skills, then such questioning is perfectly

Adapted from *Journal of Reading*, 18 (April 1975), 512-517.

valid. But if students in fact do not already have those skills, then directing their reading with questions that assume they do is misdirected teaching.

Is it valid to use a teaching procedure which, on the one hand, is designed to teach a skill but, on the other hand, assumes prior possession of that skill in order to perform the required task? This is what happens when a teacher attempts to teach interpretation, for example, by asking interpretive questions of students who need help in learning how to interpret. If students can answer the interpretive questions, do they not already possess the interpretive skills? If they do not possess the skills, does asking questions that require the use of the skills really teach them the skills?

It seems very probable that, for instruction in how to read with good comprehension, questioning is not the answer.

Consider what is assumed for students by the science teacher in the following lesson on pollution. The reading selection in the science text focuses on carbon monoxide as a major air pollutant. The authors have organized their information and ideas using the cause-effect pattern of organization. Some of the cause-effect relationships are explicit; others are implicit. To acquire the information and to perceive the concepts imbedded in the material, students need to be able to read for cause-effect, an important part of the comprehension process.

Prior to giving the reading assignment, the teacher and students engaged in appropriate activities to prepare for the reading. Assume, then, the teacher knew that his students needed help in learning *how* to read for cause-effect. His instructional purposes were 1) to develop students' skills in reading for cause and effect and 2) to guide their learning of the content of the reading selection. To aid in accomplishing those purposes, he gave them the following questions:

1. What percentage of all air pollution is caused by carbon monoxide?
2. Why is carbon monoxide a major pollutant?
3. How does CO poisoning affect a person's body?
4. Where does much of our CO poisoning come from, other than automobile engines?
5. What is the most obvious way to reduce air pollution?
6. How do society's priorities relate to air pollution?
7. What have you observed concerning pollution that suggests people would rather not face reality?

Some of these questions are at the literal level; others are at the interpretive, requiring students to perceive cause-effect relationships across information from several places in the text. Still others are at the applied level of comprehension, requiring students to synthesize ideas from the reading selection with ideas from other sources or experiences.

Are these good questions? Surely they are. Are they appropriate ques-

tions? No, they are not, *if* the intended objectives are to be believed. The questions may be appropriate for students who already know how to read for cause-effect relationships, but they are premature for those who lack the experience and skill. For students who have not learned how to manipulate information and ideas in this fashion, questions that in reality assume possession of that skill do little to develop it. Using questioning to direct students' search for information or ideas assumes at least some competency and independence in the process essential for the search.

Questions Are Valuable

None of this is to suggest that questioning is poor teaching procedure in the absolute sense. Speeches have been given, conferences organized, and papers, articles, and books written on questioning as an instructional device. Anyone conversant with education cannot doubt the appropriateness of questioning.

The art and science of questioning is fundamental to good teaching. Well-formed questions can stimulate both critical and creative response from students as they interact with one another or the text material. Questions can be adjusted to the needs of students and their ability to respond, ranging from simple to profound, concrete to abstract. Good questions can reinforce the reading skills that students already have by providing practice on the application of those skills. Many teachers use study guide questions for that purpose. Good questions, accompanied by reinforcing feedback on the nature and quality of the responses, can raise the students' levels of sophistication in their use of the reading skills implicit in those questions. Many teachers provide students with study guide questions to serve as the basis for small group discussions to accomplish that purpose.

But what happens when students do not possess the skills to practice or reinforce? What does one do when questions do not seem appropriate or do the job? It is very likely that there needs to be a procedure that is preliminary to the application of good questioning strategies. This could well be the application of good *simulation strategies*.

Consider a different approach to the same lesson on carbon monoxide. The teacher guides students through the same appropriate activity to prepare them for reading the text. The purposes for reading are the same. But the manner in which the teacher guides the students is different. The following materials are given to the students and the teacher goes over the directions orally to make certain they understand how to perform the task.

Carbon Monoxide

Part I. Directions: Here are twelve sets of words or phrases and numbers. The words or phrases in each set are separated by a slash. You are to decide if the first word or phrase in a set stands for a possible cause of what the second

word or phrase stands for. The numbers at the end of each set tell you the page, paragraph, and lines where you can find the information to help you decide. Work together to make your decisions. Be ready to show the information in the text that supports your decisions.

— 1. Carbon monoxide/more than 51 percent air pollution (113,1,1–3).
— 2. Automobile engines/80 percent carbon monoxide emissions (113,1, 6–7).
— 3. Incomplete combustion/significant percent of CO emissions (113,1, 4–7).
— 4. Carbon monoxide/danger, illness, death (113,2,1–3).
— 5. One gallon gasoline/three pounds CO (113,2,6).
— 6. Mild CO poisoning/highway accidents (114,1,1–2).
— 7. Faulty exhaust systems/poisoned people (114,1,9–11).
— 8. CO poisoning/oxygen starvation (114,2,1–2).
— 9. Hemoglobin and CO/strong chemical bond (114,2).
— 10. Heavy smoking/permanent combination of hemoglobin and CO (115, 0,4–6).
— 11. Inhaling CO/trouble with hearing (115,1,9–11).
— 12. Reduction in traffic/obvious remedy (115,1,1).

After part one is completed by students and discussed, they do part two. Again, the teacher goes over the directions to insure understanding of the task.

Part II. Directions: Read each of the following statements. Check those you believe to be reasonable. Think about the work you did in Part I of this guide as well as other ideas you have about pollution.

— 1. People will risk their lives to have what they want.
— 2. What a person wants is not always what he needs.
— 3. Good replaces bad more easily than bad replaces good.
— 4. What you can't see won't hurt you.
— 5. A surplus can cause a shortage.

Now, what is the difference between the two lessons and the procedures they represent? The obvious difference is that one is based on a set of questions while the other is based on a set of words and phrases and a set of statements. But within that obvious difference is an important distinction and the potential for *simulation*.

You will note that the materials for the second procedure really present possible answers to the questions posed in the first procedure. But the *teacher* asked those questions *of himself* rather than of his students. As a skilled reader of science material, he was able to discern the cause-effect relationships and to express them by a series of related words or phrases as well as by a set of sentences. He then took these, his own answers to his own questions, and presented them to his students as a series of alternatives for them to consider. Their task was to take those "answers" and determine if the information in the text or ideas from their store of knowledge and

experience either supported or denied their validity or reasonableness. Students discussed the alternatives among themselves in small groups and later with the teacher. In those discussions the question that was constantly raised in reference to decisions about the validity of alternatives was "What's your evidence?" Students responded to that question by identifying information from the text or ideas from their experience to justify their decisions. Thus, they went through a simulation of the process the teacher went through when he created those alternatives in the first place.

As a skilled reader, the teacher could perceive relationships within the information and could state those relationships. On the other hand, when students are not skilled readers, they may experience great difficulty doing what the teacher can do well. But when asked to find support for statements that do express possible relationships across information in the text, they can locate that information. In finding support for the statements, the students deal with the text in almost the same way the teacher did in creating the statements. They develop a feeling for the skill the teacher had to apply when creating the statements.

Simulation can be defined as an artificial representation of a real experience; a contrived series of activities which, when taken together, approximate the experience or the process that ultimately is to be applied independently. As it pertains to the process of comprehension in reading, simulation would be to contrive a set of activities which approximate what one does when one comprehends independently. In our example, the activity approximates reading for cause and effect, providing a representation of that experience. Repeated over time, experiences of this type give students a feeling for processes which are part of reading comprehension.

Independent Questioning

With that feeling as the base and the reference point, and with the confidence that comes from success, students then can respond more readily to questions that require the application of the skill in order to produce their own answers. The teacher can explain that the process is almost the same: they still look for relationships and they still think about what ideas those relationships represent; but now they develop their own expressions of those relationships. With the previous simulated experience providing a pattern to follow, they are in a much better position to produce such answers than if they had not had that experience.

The principle operating here is that it is easier to recognize information and ideas than it is to produce them. Using that principle as applied to the difference between responses to statements and responses to questions, one can establish an instructional sequence that moves students along a continuum of independence.

1. The teacher prepares statements for students' reactions. References are added to indicate where students might look in the text to determine if there is information to support the statements (page, column, paragraph, if necessary).

2. The teacher prepares statements for students' reactions. No references are given.

3. The teacher prepares questions for students to answer. References are added to indicate where students might look in the text to find information which, when combined, might answer the question.

4. The teacher prepares questions for students to answer. No references are given.

5. Students survey the material, raise their own questions and answer them.

6. Students produce statements of meanings, concepts, and ideas as they read.

Within each of these steps in the sequence one can accommodate a range of ability and achievement by the sophistication of the statement or question. Steps 1 through 4 are teacher-directed; steps 5 and 6 are student-directed.

Earlier it was stated that using questions to guide students' reading in order to develop reading skills is really based on the assumption that students already have the skill; otherwise they would not be able to answer the question. To be sure, the simulation as represented in steps 1 and 2 in the above sequence also makes some assumptions, but not nearly so many. Students identify, they do not produce, the valid responses. The assumption is that when they encounter the information in the text they will see the connection between that information and the statements. If they do not, it may be because the statement is too abstract. So you make it more concrete, adjusting statements just as you would adjust questions.

The next time you guide students' reading, ask yourself the questions you would normally ask them—questions that deal both with the content of the selection and the comprehension process essential to understanding that content. Then give the students your answers as a series of alternative statements to respond to. Depending on your students' achievement levels, you may want to provide references for them as suggested above. Make certain the statements aren't too sophisticated for them. However, do not be afraid to have the students think beyond the literal level of comprehension. Then be ready for responses and for justifications you may not have thought of yourself. These will come if, after students have responded to the statements and are discussing them with you, you keep asking the all-important question, "What's your evidence?"

And *where* does all of this happen? Right in the regular content area

classroom, of course. And *who* does it? The regular classroom teacher. *How?* As indicated above. *When?* As often as it seems profitable; as consistently as time and logic will allow. *Why?* Because students need the help; they need to be shown how to do what their teachers require them to do. *What?* We said, "Because. . . ."

• *How can time, task, and movement options be modified to provide greater student and teacher freedom in the classroom?*

THE HALF-OPEN CLASSROOM: CONTROLLED OPTIONS IN READING

Richard A. Earle
McGill University
Richard Morley
Los Angeles Schools

Educational commentary of the 1970s reflects an intense concern for increased freedom with responsibility in the classroom. This new (or at least revisited) professional consciousness has pervaded the "system," including those of us who teach the language arts. Implementing such heady philosophical goals as "freedom with responsibility" has proved onerous. Too often we flit from one promising innovation to another, adopting with little reservation, often rejecting with disappointment. Thus, many of us conclude that organizational schemes and sets of materials do not, by themselves, humanize and individualize instruction in reading and English. Only teachers do. In the hands of an unwilling or threatened teacher the most efficient classroom plan becomes chaos; the most promising materials turn stale.

The open classroom concept, regarded by many as a direct route to independence for students, often tends to arouse student interest, improve the climate for learning, release the teacher for small group and individual guidance, and generally promote the uneven growth we must expect in a classroom characterized by true individualization.

Unfortunately, many of us are hesitant to "open up" our classrooms. After all, we were successful learners in more traditional learning environments, and many of us are successful teachers in the same system. We have seen the open classroom, particularly at the middle school and secondary levels, fail miserably, the victim of extreme teacher discomfort and students

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who were unable to accept a large measure of responsibility. So, fearing the unknown, we stay with the familiar.

Our classes meet for forty-five minutes each day. We are responsible for the usual English curriculum—literature, composition, and the other language skills, including reading. With such a vast curriculum, we find it inviting to allot twelve to sixteen weeks to the study of literature and smaller periods of time to each of the other language areas. We know that language skills should be taught in an interrelated fashion, but it never seems to work for us. We schedule a single topic per day along with a single class activity or homework assignment. On occasion we try administering diagnostic or pretests, but a few of the kids always pass them. Then, not knowing how to proceed, we stop giving pretests. We become a classic case of the power of affect over cognition. We know what we should do, but we are afraid to change. We are not satisfied with our teaching, but we are afraid to "go off the deep end."

To bridge the gap between the classroom in which no options are allowed and one which offers a maximum of freedom is the basis for the half-open classroom. The underlying assumption is that instruction can be humanized and individualized a step at a time, obviating the need for an overnight "moth-to-butterfly" transformation. Increased freedom with responsibility can be achieved by the gradual adjustment of three elements: 1) time, 2) task, and 3) student movement. By slowly increasing options within any given element, the alert teacher can reduce an awesome goal to one of manageable proportions.

Time Options

While the teacher experiments with time options, he continues to prescribe both learning tasks and student movement. However, he begins to offer students alternatives in *sequence* and *deadline*. The first step is to allow students some freedom of sequence, that is, to complete prescribed tasks in any order they choose. For example, "I've listed here on the board several things. They must be completed this period, but you can do them in any order. I'll be available for help if you need me. Any questions? Begin." Although this is indeed a meager beginning, most students appreciate a measure of freedom that does not tax an underdeveloped sense of responsibility. As for the teacher he is now free to answer questions and help individual students make decisions, without that sinking feeling of no control.

The next step is to extend the sequencing responsibility from a single class period to longer periods of time, with carefully described tasks listed on the chalkboard or assignment sheets. Reading assignments formerly made on a daily basis, for example, can be extended to a complete novel or group of short stories, with additional structure provided by study guides or other

aids. The teacher as diagnostician is freed from the whole class presentation to monitor the progress of all students, encourage individuals who are "dawdling, and quietly aid those who are having difficulty. Self-correcting guide questions or quizzes can provide students with constant feedback throughout the various tasks, allowing the teacher more time to spend with those students who display less ability or responsibility. After each period of independent sequencing, the scheduled whole-class presentation or discussion deals with the substance of the learning tasks as well as the degree of comfort and responsibility exhibited by the students and the teacher.

As independent sequencing becomes manageable, it becomes evident that some students need more time than others to accomplish a given task or series of tasks. The teacher may now feel free to enforce deadlines firmly, but not rigidly. In his individual consultation throughout the working time, time limits can be quietly extended or reduced on an individual basis. As individuals or groups of students finish the prescribed tasks, small group discussions can be scheduled, "tuneout" time allowed, or other tasks suggested, such as choices of writing assignments or the task of helping peers who need additional time and guidance.

After experimenting continually over several weeks, we find that students become more responsible and more comfortable with time options. With increased confidence, arbitrary deadlines can become teacher-student decisions. Perhaps time restrictions may be removed altogether, with the exception of those the students impose on themselves. We find that students can increase their self-direction and initiative, if we feel free enough to let them.

Task Options

Learning tasks are determined by whatever instructional materials we have available, combined with "pet" assignments which seem to work so well for us. Dividing these tasks into "required" and "optional" categories adds another dimension to our system of controlled options. Hence, we may prescribe the following tasks (allowing time options as described above):

1. Read "The Secret Life of Walter Mitty" (p. 123 ff.). Remember our class discussion on "daydreams." Be sure to use the study guide as an aid; copies are in the folder on my desk.

2. Complete your next level in SRA *Reading for Understanding*. Be sure to chart your results. If you have any difficulty remembering the procedures, check with me.

3. Do lesson fourteen in your spelling book (pp. 32–33). Put the completed assignment in the box on my desk.

4. From where you sit, select one apple in the bowl on the front table. Describe it in writing so a friend could identify it.

Now we begin to offer combinations of prescriptions and options. For example, "You must complete any three of these tasks." Or, "You must complete the first two tasks and either three or four." Another small step is to split one or more tasks into optional halves. For example: a) Read Walter Mitty and complete the Study Guide. b) Read the article on heart transplants in *Newsweek* (Oct. 14, 1972) and answer the guide questions.

Such minimal freedoms can be expanded easily as both teacher and students develop. For example, both time and task options can be seen in the following short story unit: Assuming we are to concentrate on the concepts of plot, character, and theme, we devise three lists of short stories representing each of the three concept areas. Students are instructed to complete study guides or quizzes concerning stories they choose from each of the three groups, then participate in teacher or student-led discussions. Another possible option in this unit could involve leading a discussion, or writing a short paper concerning plot, character, or theme of one of the stories read. The element of choice here is centered in reading matter, a choice which, no doubt, we all desire. Various levels of sophistication can be represented, with some stories labeled "challenging" or "easier to read," and differentiated writing assignments devised. Incidentally, given the option, most students will not continue to select tasks that appear too easy; they will elect to do that which is both interesting and challenging.

As both teacher and students gain confidence in handling controlled options of time and task, some students leap ahead on assignments; others lag behind. This is to be expected as individuals become involved in a learning sequence. But classroom reality prompts us to form some semblance of order, and indeed classroom or group interaction necessitates some common ground of subject matter. One possible solution is to formulate fewer requirements and increase the options for those students lagging behind. For students soaring ahead, the teacher can suggest a list of "quest" activities, where the student defines his own learning tasks and the length of time he plans to spend. Such questing can supplement tasks being completed by the rest of the class, or constitute a self-directed project stemming entirely from a student's particular interest. A list of "quest" activities/projects related to certain assignments can eventually be developed by the teacher and students. Such projects, games, reports, stories, and poems can be accumulated to provide even more options to stimulate future student interest.

Movement Options

Classroom space is perhaps the more sensitive element in individualized learning. Which kids go where, when? Everyone from parents to janitors has definite ideas about the right way to arrange the furniture and the students. Here, too, prescriptions can give way gradually to options. One step is to let

the arrangement of furniture and students follow the tasks, rather than to fit the tasks to a permanent physical organization. For example, if recording and/or listening is an expected task, a closet or corner of the room can be set aside for that purpose. If free reading is an option, another corner may become the library. If student tutoring or group effort is prescribed or offered, some desks must be arranged to accommodate this activity. If newspaper or magazine production is elected, the teacher's desk can be used as a center of writing-editing activity plus individual student-teacher conferences.

With both students and teachers becoming comfortable with the movement necessitated by individuality of time and task, we can approach the difficult job of grouping to correct specific skill deficiencies, using a system of pretests and related prescriptions, such as *Tactics in Reading. Power III, The Reading Spectrum*, or other available materials. With the lockstep broken and individual learning begun, one prescribed task can be listed as: "Take the pretest on _____. Have it checked by me or someone else who has already mastered it. If you pass it, record the results on the class chart and move on to another task. If not, sign up with me for small group work with others who need to improve that skill."

Student movement within the classroom is only a small part of the total picture of movement options; however, students come first in terms of ease and comfort. Options can be expanded, if school rules permit, to choices by students to spend time in the library, study hall, commons/cafeteria, or a particular subject/department resource center. The teacher, of course, distinguishes among student movement essential to learning tasks, "neutral" movement that is a matter of individual preference, and movement which actually *detracts* from learning. He makes it clear that increased freedom always means increased responsibility. Most students quickly grasp the connection between the two factors, and cooperate to solve problems that might jeopardize freedom gained.

We are tempted often to impose rigidity in the classroom, rather than run the risk of creating havoc. The optimum balance between freedom and responsibility is a tenuous thing. Change is necessary to achieve this balance and to maintain it; change that is consistent and permanent, not flashy and fleeting. However, change does not require specific instructional materials, specially designed physical facilities, or a particular type of administrative organization. It does not depend on teacher aides or team teaching. Nor does it preclude them. For students, change means individual growth that comes by doing—practicing skills, manipulating ideas, pursuing interests, and by fulfilling the basic need to accomplish things and feel good about yourself.

Only the teacher, however, can lead the way when he feels free to change.

Significant change in classroom management must be preceded and accompanied by changes in teacher attitude, and change is never comfortable. But the necessary discomfort can remain manageable through an awareness of the basic elements in classroom management, and the knowledge that each element can be considered in turn, opening up the classroom by degrees to achieve increased freedom with responsibility.

Section Four

SPECIFIC METHODS

The range of specific reading and study skills needed for successful content area learning is wide and varied, and so are the methods required to teach these skills. The specific skills taught and the instructional methods adopted will be in direct response to student skills needs as revealed through assessment, and will be undertaken within the framework of the general instructional strategies outlined in the previous section.

A comprehensive treatment of all the possible reading and study skills involved in content area learning and the specific methods for teaching each one would go far beyond the scope of this volume. However, the three articles which follow represent the three most common areas of skills instruction needed by students—word identification, comprehension, and organization skills. In the first article, Bortnick and Lopardo illustrate how the cloze procedure can be used effectively to teach word identification through contextual analysis. In the second article, Harker rationalizes and outlines a method for teaching comprehension. Finally, Putnam shows how students can be led through an instructional sequence that will result in greater independence in organizing and retaining information read. All three articles describe methods which, like the general strategies outlined in the previous section, actively involve students in the learning process.

- *Why is the cloze procedure appropriate for teaching context clues?*
- *What steps can be taken to adapt the cloze procedure to teach context clues?*

AN INSTRUCTIONAL APPLICATION OF THE CLOZE PROCEDURE

Robert Bortnick
University of California at Santa Barbara
Genevieve S. Lopardo
Chicago State University

It is generally agreed that the contextual cue is a powerful word recognition strategy for both the beginning reader and the more advanced reader. Moreover, it is a strategy that is most often employed by the efficient adult reader. Thus, instructional programs in reading at all levels should provide for systematic instruction in this word recognition strategy.

The cloze procedure lends itself to instruction in the use of contextual cues as a reading strategy. It can also be effectively used to teach other aspects of the reading program, including word analysis, vocabulary development, and knowledge of the structure of the English language.

How to Use It

Cloze type material can be used in a variety of ways to teach the use of context. One activity will be described but it can be adapted in a variety of ways for different instructional purposes and for students with different levels of reading ability. Using a random cloze passage, every fifth word deleted and replaced with a blank of standard length, the activity proceeds as follows.

As a group activity, or on a one-to-one basis or small group activity, the teacher instructs students to read silently an entire cloze passage which has been specifically prepared for them. Reading the cloze passage in its entirety will help the students to make maximum use of redundant information and

Adapted from *Journal of Reading*, 16 (January 1973), 296–300.

contextual cues throughout the passage when they later attempt to fill in the cloze blanks. Reading through the cloze passage also fosters the habit of reading the material before and after the deletion. Students need to be taught that if they are going to make use of context as a word recognition strategy, it is important they read up to the unknown word and beyond it for additional cues.

After the cloze passage has been silently read, it can be read aloud, sentence by sentence, either by the teacher or a student. Students can then suggest words which might fit into the blanks. All semantically and syntactically acceptable responses are taken but students are asked to offer reasons for their choices. Offering the reason is one of the most important aspects of the instruction since it encourages an understanding of the structure of the language and provides the teacher with a considerable amount of information on the instructional needs of students. For example, the student who replaces a noun in a verb slot or a present tense verb in a past tense verb slot is in need of particular instruction. Through examination of student responses, the teacher becomes sensitized to students' peculiar instructional needs.

Through discussion and direct instruction, the teacher helps the students decide on acceptable responses and to eliminate unacceptable ones. Reasons for acceptance or elimination are taught and/or discussed. It is not necessary to discuss every item in a passage. The teacher may pick certain deletions for discussion which suit the purposes of the lesson and students.

The cloze passage with possible correct responses is then compared with the original, unmutilated passage. In this comparison, discussion and teacher guidance will focus on whether meaning is affected by the acceptance of certain responses. For example, it can be pointed out that the insertion of the word *automobile* for *car* does little or nothing to change the meaning of a passage. On the other hand, the substitution of the noun *bike* for *book*, although syntactically acceptable, most probably would affect the meaning of the passage. In using the cloze procedure to teach context, the teacher repeatedly points out the cues which immediately surround the blank as well as cues which may appear at the beginning, middle, or end of the passage.

Further Benefits

Other kinds of information can be pointed out in the comparison of the cloze and original passages, depending upon the purpose of the instruction.

- Certain words (noun, adjective markers) in the immediate environment of the deletion cue the reader.

- The position of words in a sentence gives certain cues: a deletion that is the first or last word in a sentence limits the possibilities of choice.

• The redundancy of language within the passage cues the reader: often a deletion at the beginning of the passage is clarified by later redundant information in the passage.

The teacher should lead students to understand that activities utilizing cloze passages involve strategies that will be of value to them in their independent reading. Reading strategies (such as those described above) need to be carefully delineated for students. Moreover, students will need many opportunities to apply and practice these strategies. Simply having students complete cloze passages does not teach the strategy but gives practice in what has already been taught.

After the comparison and discussion of the cloze and original passages, students can independently follow the same procedures on a different passage. Passages of different levels and length can be prepared to meet the reading needs of a wide range of students.

After the teacher sets the purpose for the particular cloze passage, the activity can be summarized in terms of directions to the students as follows.

• Read through the entire cloze passage silently.

• Reread the cloze passage, writing in words you think fit the blanks.

• If you can, try to offer your reasons for your choices for these blanks (teacher selects certain items). "It sounds right" is a good reason in many cases.

• Compare your choices with the original passage.

• Be prepared to discuss both passages.

The preceding instructional procedure can be varied by the use of different types of cloze passages to focus on different aspects of reading instruction. Some examples follow.

• Prepare cloze passages deleting certain lexical items (nouns, verbs, adjectives) to focus instruction on the syntactic constraints of the language.

• Prepare cloze passages deleting parts of words (for instance, delete all of the word except for initial and final phoneme, inflectional ending, or prefix) to focus instruction on word analysis strategies. In a recent study, the authors prepared such a passage to study the reader's utilization of particular linguistic cues in word recognition.

• Prepare cloze passages with only the first or last word of a sentence deleted as another means of focusing instruction on the syntactic constraints of the language.

• Prepare cloze passages deleting items for which students must supply synonyms to focus instruction on vocabulary (meaning) development.

• Prepare cloze passages over different content areas or authors to focus instruction on differences in language structure or style.

• Prepare cloze passages in which items containing certain phoneme-grapheme correspondences are deleted (for instance, all words deleted contain the short *a* vowel sound, consonant cluster *dr*, or whatever) to focus instruction on this particular type of word analysis strategy.

As is apparent, the teacher must prepare all of the passages for the various suggested activities. Whereas this may be considered a disadvantage relative to the teacher's time, it has the advantage of insuring the preparation of materials which are peculiar to particular students' needs. Furthermore, if instruction using the cloze procedure is to be effective, the teacher must take an active, directive role in instruction.

Summary

The cloze procedure is a useful one for the classroom teacher. Although this article has been concerned with its instructional applications, the procedure is also useful in ascertaining the readability of material and in evaluating student performance. In terms of the latter, the authors have been engaged in the development of a silent reading inventory based on recent cloze and criterion reference research (Bormuth, 1971, 1972). The inventory represents an effort to provide the teacher with a procedure by which student performance may be interpreted and evaluated.

While a plethora of discussion on the cloze procedure exists in the literature, only a small portion relates to instructional application; only a few paragraphs (Schell, 1972) have been directed toward the *how* of teaching with the procedure. This article has attempted to bridge the gap between research findings and their application in the classroom.

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- *What rationale is presented for adopting a task analysis approach to teaching comprehension?*
- *What procedure is suggested to teach comprehension as a problem solving process?*

TEACHING COMPREHENSION: A TASK ANALYSIS APPROACH

W. John Harker
University of Victoria

One perplexing, yet common, problem facing the secondary teacher is the student who responds to reading assignments by stating, "I read it but I don't understand it." What is the most effective method of teaching comprehension at the secondary level?

The answer to this question rests on an underlying notion as to what constitutes comprehension. While the exact nature of comprehension remains a matter of continuing controversy, a working understanding for teaching purposes is possible.

Comprehension is essentially a problem solving process. The student is expected to understand the reading selection for some particular purpose. To achieve this understanding, he must undertake a problem solving task. In performing this task the student's cognitive skills and abilities are mobilized in a manner unique to the particular comprehension task at hand.

Thus, the nature of the comprehension task determines the method for solving it. And since no two comprehension tasks are identical, the methods of solution differ.

For this reason a task analysis approach to the teaching of comprehension is appropriate. Rather than teaching specific comprehension skills in a vacuum, as is so often the case, a more realistic practice involves analysis of particular comprehension tasks as a means to solution. As students grow in

Adapted from *Journal of Reading*, 16 (February 1973), 379–382.

ability to analyze and solve comprehension problems, their ability to use the necessary comprehension skills develops concomitantly.

Method Illustrated

Three examples employing different kinds of comprehension tasks illustrate how the task analysis approach to teaching comprehension may be used in the classroom with reading material from different content areas.

Often the simplest kind of comprehension task requires literal understanding. Here students are expected to comprehend what is stated explicitly in a passage. Such a passage might contain sentences like the following:

> Against the back of the shelf stood a row of strange looking bottles—small round bottles of red glass, clear bottles containing a mysterious amber hued liquid, bottles of a peculiar hourglass shape, some bottles squat and opaque, and still others having bright green contents and standing tall and cylindrical on the shelf.

Students might be asked, "How many different shapes do the bottles described have?" In order to answer this question, one must analyze and solve a specific task to provide the particular information required. This process of analysis and solution may be approximated by the following sequence of questions and answers, initially stimulated by the teacher, but later conducted independently in the mind of the comprehending student:

- How many bottles are there? (It doesn't say; it says only that there is a row of them.)
- How are the bottles described? (They are of different colors and different shapes.)
- Is the shape of each bottle described? (No, sometimes only the color of the bottle is described.)
- Ignoring the colors then, what different shapes are described? (Round ones, hourglass shaped ones, squat ones, and tall and cylindrical ones.)

Solution: There are four different shapes of bottles described.

Implicit Understanding

A second kind of comprehension task involves inferential understanding. Here students must grasp what is revealed implicitly rather than what is stated explicitly. An example of an inferential comprehension task can be found in a reading selection containing a sentence such as the following:

> His first pitching experience was when he played ball on the rooftops of apartment buildings in New York as a boy.

Students may be asked "Do you think that the person referred to in this

sentence grew up in a wealthy family?" The analysis and solution of this task can be approximated by the following sequence of questions and answers.

- Does it say whether they were wealthy? (No. Therefore, a literal solution is impossible; the solution must be inferred.)
- Where did he play ball? (On the rooftops of apartment buildings.)
- Why did he play there? (It doesn't say, but probably because there was nowhere else for him to play.)
- Would he have played somewhere else if he was from a wealthy home? (Probably he would have, in his own yard perhaps or in the kind of park that you sometimes see in wealthy neighbourhoods.)

Solution: He didn't grow up in a wealthy family.

Assessing Accuracy

Another kind of comprehension task demands critical understanding. Here students must make judgments concerning the material read, based on their backgrounds and experiences. For example, students might read a statement such as the following:

> The reasons for the outbreak of World War I have never been accounted for accurately.

A critical understanding of this statement demands that students assess its accuracy. Questions which might be asked include:

- Is the author of this statement a recognized authority?
- What support does the author provide for his statement?
- Where is the statement made—in a popular article, in a scholarly journal, in an advertisement for a new book?
- Is this a recent statement?
- Do other authorities agree with this statement?
- Where can I go to gain further information regarding the accuracy of this statement?

The manner and extent to which these questions can be answered will depend on the different backgrounds and experiences students bring to the critical comprehension task. Generally, however, questions such as these encourage student development in critical comprehension.

The first step in employing the task analysis approach is the teacher's analysis of the comprehension task to determine the sequence of steps necessary to solve it. Once these steps have been determined, they must be actively taught to students to demonstrate how this approach will result in the desired understanding.

To assume that students are able to master the process of comprehension

on their own is an all too prevalent fallacy. Students must actually be shown how to perform comprehension tasks. When the comprehension process has been illustrated, transfer of learning gained through the solution of particular tasks can be encouraged. In this way, independence in comprehension is developed. To further this independence, teachers can modify their questioning strategies by requiring students to formulate a steadily increasing proportion of their own questions and by demanding solutions to increasingly complex tasks.

Conclusions

The task analysis approach to teaching comprehension is based on the idea that comprehension results from a dynamic cognitive process and not from the rigid application of a set of predetermined skills. To comprehend effectively, students must be taught how to analyze the particular comprehension tasks confronting them in order to determine the specific thinking processes necessary for their solutions. Since comprehension tasks differ, the manner by which they are analyzed and solved will also differ. This is particularly true in the secondary grades, where the variety of comprehension tasks confronting students is extended by reading in the various content areas.

For this reason, teachers are obliged to teach students a generalized approach to comprehension which, in turn, can be applied to a wide variety of particular tasks. Once this generalized approach has been taught through exercises similar to the ones illustrated here, students' independence in comprehension will develop and their understanding of specific reading assignments will increase.

• *What is the instructional sequence suggested for teaching students how to organize and retrieve information derived from reading?*

DON'T TELL THEM TO DO IT . . . SHOW THEM HOW

Lillian R. Putnam
Kean College

One of the most useful study skills a secondary school student needs is the ability to read a section or chapter in a text and to express the main ideas in concise statements or in a good study outline. The ability to do this is almost essential for learning content material, organizing it to see relationships, and retrieving it for review and exams. Teachers constantly tell students to do this; it is more helpful to show them how. The following procedure has been effective in teaching them how to express main ideas.

Select a section of five or six paragraphs from the social studies or science textbook. (Other texts can be used but these two usually lend themselves best to the procedure initially.) After students have read it, present them with three statements and ask them to select the one which best expresses the main idea of the section.

Statement I has nothing to do with the text, and is completely irrelevant; I call it my "way-out" item.

Statement II is related to the text but is composed of minor details.

Statement III is the best expression of the main idea you can compose.

Students are delighted to eradicate Statement I quickly, thus narrowing the choice to two items. If they select Statement II, it is easy to show why it is incorrect: details vs. main idea.

When sufficient practice with that procedure enables the students to

Adapted from *Journal of Reading*, 18 (October 1974), 41–43.

select the correct statement, increase the difficulty of selection. Present three statements again, but this time eradicate the irrelevant one.

Statement I contains minor details.
Statement II is the main idea expressed poorly.
Statement III is the main idea expressed well.

The order of the statements would, of course, be varied.

Having learned from the first set of statements that minor details are not acceptable, Statement I is eradicated first. Again, the task is quickly reduced to a choice of two. If the incorrect one is selected, it is easy to teach the reasons why: one is more encompassing, or it includes only the main point.

After repeating this format several times and using different sections of the test, the student can then be asked to compose his own main idea for a selected section. The length of the section read can be increased gradually, so that several main ideas are needed.

Having gone through the above procedures, the task no longer looms like an insurmountable obstacle. Instead of groping wildly for anything, the student now knows it should be as complete as possible without including minor details. First attempts to do this do not result in perfection, but they are far superior to the results achieved when students are simply told to express the main idea.

Study Outlines

A similar proceuure can be applied to teach students how to read and make good study outlines. Again, select several paragraphs from a social studies or science text which lend themselves to a natural unit. Present the student with a partial outline which indicates the number of main items, the title of each, the number of supporting ideas under each, but not the supporting idea itself.

I. Statement A.? B.?
II. Statement A.?
III. Statement A.? B.? C.?

The student now has a partial structure. He knows there are three main ideas, and how many details he should find to support each one. Note that Section II has only one supporting idea. This is perfectly legitimate, despite the stringent demands of a formal outline.

After this procedure can be done successfully, reverse the process. Present the student with the details and ask him to supply the main statements.

I. ?A. Statement B. Statement
II. ?A. Statement
III. ?.A. Statement B. Statement C. Statement

The final step, of course, would be for the student to make the complete outline. If this still presents a problem, give him a skeletal outline indicating the number of main ideas and the number of details required.

Experience with these procedures in many classrooms has led me to believe that results are well worth the time required to teach them. Why do they work?

1. It reduces a seemingly impossible task to one with which the student can cope.

2. It provides an opportunity for mastery at each step.

3. The discussion and reasons for *why* an incorrect statement was chosen are more important than the fact that it was wrong.

4. When the teacher presents a good statement, it provides a model for students to emulate.

5. When the student sees a partially completed outline, there is a psychological urge to finish it.

6. By presenting main statements of the outline first, the teacher is moving from the general to the specific—from wholes to parts.

7. A partial structure provides a psychological crutch to be used only as long as needed.

Although some commercial materials supply workbook pages using partial structures, the process is most effective when done with students' own textbooks because it then has direct application.

Section Five

DEVELOPING PROGRAMS

In successful reading programs, the whole is greater than the sum of the parts. No description of the various components of reading programs and the stages in their development can take the place of examples of successful total programs. The purpose of this section is to provide such examples.

To begin, Niles provides an excellent perspective on the often debated question of the value of behavioral objectives in program development. Starting with a clear statement of the dangers implicit in the adoption of behavioral objectives, she goes on to show how these dangers can be avoided when behavioral objectives are properly conceived and implemented. Next, Frankel describes the range of motivation and reading ability facing the typical content area teacher, and how she overcame these obstacles in her social studies classroom. Application of her illustrations to teaching in other content areas can be clearly drawn. Finally, a schoolwide project is outlined in the DECA program which, while ignoring many of the tenets of traditional education, has succeeded by involving students in applying reading to tasks of interest and relevance in their lives.

Each of these articles demonstrates that reading program success is built on meeting the real needs of students as these needs exist in the school learning situation. These needs can be revealed by initial assessment as described in the first section of the volume. Recognizing this, we can return to the beginning, to the development and selection of assessment measures. It is now up to you—with your students, in your classroom, in your school.

• *What major advantages in program development can result from properly conceived and implemented behavioral objectives?*

BEHAVIORAL OBJECTIVES AND THE TEACHING OF READING

Olive Stafford Niles
Connecticut State Department of Education

When the history of education in the 1970s is written, it may well refer to this decade as the age of accountability. Educators are being told to make up their minds what they are trying to accomplish and then prove they are doing it.

There are dangers for reading instruction in this situation, but there are also positive values.

All good teachers have always been accountable. They have believed that if a child failed to learn it was at least partly the teacher's fault. But this was a kind of personal accountability. The new accountability is often (in fact, usually) imposed from outside though, hopefully, with the advice and consent of the teachers whom it affects. It is a public matter, and it is based on a kind of statement which is new to some teachers. This statement is known, variously, as a behavioral objective, a performance objective, or an instructional objective.

Behavioral objectives have two major characteristics which must be kept clearly in mind in any evaluation of the effect they may have on reading instruction:

1. Behavioral objectives are always stated in terms of the learner's behavior, not the teacher's activity.
2. They describe pupil performance that is measurable or at least objectively observable.

Adapted from *Journal of Reading*, 17 (November 1972), 104–110.

An emphasis on behavioral objectives may have negative effects on curriculum building and on the teaching of reading. In the first place, almost everyone who views this trend with alarm points to the fact that it is very much easier to write and implement behavioral objectives which are concerned with the mechanical aspects of learning than it is to write and implement objectives concerned with the deeper, and probably more important, parts of the reading act. One writer (Kirkton, 1971) quotes from a Danny Kaye song in the movie, *Hans Christian Andersen:*

Inchworm, inchworm
Measuring the marigolds
Seems to me
You'd stop to see
How beautiful they are.

Such thoughts illustrate the fear that a major concern for observable, measurable responses will take precedence over those things—the beauty of the marigolds—that can't be reduced to directly measurable, or even observable, terms; that as we try to produce objective proof that learning is taking place, the danger of trivialization multiplies. This kind of emphasis, these critics maintain, will result in a deemphasis on the humanistic goals of education.

How would you write a behavioral objective, they ask, related to the development of an attitude of open-mindedness about literature, or the imaginative experience we hope the little child will have with poetry, or the fascination with words which should be a major goal of vocabulary teaching? These things, say the critics, cannot be measured except in peripheral and debatable ways. Perhaps another way of saying the same thing is that emphasis on behavioral objectives will tend to make educators lose sight of long range goals and focus on the precise and immediate. The assumption is that the precise and immediate are of less value than the long range and relatively intangible.

Other Dangers

Another kind of danger is that teaching might become so completely oriented to the achievement of behavioristic goals that teachers would simply be substituting teaching to the goals for teaching to the test, a view of education which is usually deplored. Whether this is a real danger depends on what the goals are. Bloom's cognitive taxonomy (1956) specifies six levels, ranging from memorization to evaluation (memorize, comprehend, apply, analyze, synthesize, evaluate) and Krathwohl's affective taxonomy (1964) has, correspondingly, five levels from mere receiving and attending to characterization by a value system (receiving-attending, responding-reacting, valuing-internalizing, organizing-resolving conflicting values, characterization by a value system). As one goes from one level to another in either of

these taxonomies, it becomes increasingly difficult to specify behavioral objectives—hence the trap into which the unwary are often betrayed of overemphasizing the first one or two levels and underemphasizing or omitting the others. To avoid the trap, the writer of objectives needs not only skill and imagination but also a deep understanding of reading as a process. Otherwise, it is probably true that teachers of reading could become locked into a framework of low level objectives which could have only a bad effect upon the whole program.

A related danger is that a reading curriculum written in terms of behavioral objectives could be a very narrow curriculum, mostly or entirely oriented to skills. It might also be a very restrictive curriculum with no room left for the child to learn to set his own goals. Neither of these conditions needs to develop, but both are distinct and dangerous possibilities, and the child who has not learned to set goals for himself has been deprived of one of the most important aspects of his education.

Perhaps the most serious threat is that emphasis on behavioral objectives may result in fragmentation of the teaching of reading. Success in reading does not come from the application of a series of skills separated and in isolation but rather is an application of combined and synthesized skills. Emphasis on precise, measurable goals tends in exactly the opposite direction: toward the analysis of the reading process into small parts, each of which can be clearly defined, taught, and measured. It is quite possible that these pieces might never get put back together into any kind of whole. Teachers could find themselves producing readers who can divide words into syllables with great accuracy or analyze a piece of writing for its main ideas but who cannot read in any global or important sense.

Many persons also feel that teaching to behavioral objectives will lead to interminable testing. If teachers are always being asked to prove that they are accomplishing what they say they intend to accomplish—the basic concept of accountability—aren't they going to have to test every time they turn around? Furthermore, do they have tests that are adequate? These are very basic and important questions to which reference will be made later in this paper. It is obvious that accountability has to be based on evaluation of some sort but perhaps not the kind of evaluation these objectors have in mind.

Advantages Possible

There is a positive side of the picture. It probably goes without saying that no one can tell whether he has arrived anywhere unless he has a clearly marked goal he will recognize when he gets there. Behavioral goals are very clearly marked. They have some other advantages as well.

First, curriculum, in reading or anything else, which is built in terms of behavioral objectives has the potential to be student-centered rather than sub-

ject-centered. Since these objectives must be written in terms of what a student is expected to be or do as a result of instruction, they force attention away from subject matter and onto the student. This is a big plus. It makes teachers think about their priorities—not in vague, general terms but in exact terms. Why are they teaching this particular skill? What will students be able to do if they acquire the skill which they couldn't do without it? We have spent too much time analyzing the skills in the reading process and not enough time finding out what the possession of these skills does for students.

Related to this idea is the fact that structuring the curriculum around behavioral objectives also has the potential for increasing the amount of diagnostic teaching in the schools. When goals are clearly defined, it is much easier to carry out the day by day probing process which is the essence of diagnostic-prescriptive teaching. Behavioral goals force the teacher into a situation in which evaluation is natural and constant and where individual children's needs are much more sharply seen. One student, for example, is approaching an objective related to the use of context clues to derive word meaning; another student is still completely ignoring context clues. The implications for teaching are sharply drawn.

Diagnostic teaching, of course, implies more individualization of instruction, and this could be a very important outcome of the focus on behavioral objectives. As the teacher becomes more aware of how children measure up in comparison with quite precise goals, he will be less likely to teach to the whole class and much more inclined to single out individual children or small groups who need specific kinds of help to put them on the road to the goals. Individualization in the past, what there has been of it, has tended to focus mostly on the element of time—all children doing the same work but at different rates. Behavioral objectives have the potential to create a situation in which some students don't do the work at all—if they have already reached the objective—while other students may have several options of ways to reach the objective. If the focus is on the end product, if teachers are really willing and able to provide alternative ways to reach the goal, then they have the setting for a much more meaningful kind of individualization than has been known in the past.

Freedom from Rigidity

A related point is that through the use of behavioral objectives teachers have the opportunity to free themselves from much of the rigidity of present practices in the teaching of reading. Supervisors have been afraid to let teachers experiment too much with procedures such as individualized reading and the experience approach, knowing that with the very limited background in the teaching of reading which most teachers have, they might well develop a very lopsided and incomplete kind of program for the children in their charge. This is probably the major reason why basal reading systems

still control most of the teaching of reading in this country. These systems provide structure and security. A curriculum built around specific behavioral objectives has the same potential for structure and security but leaves the teachers free to decide how they will reach the objectives, including the use of a basal system as one of their options. The procedures may be flexible; the time element, fluid; grouping, much less rigid; use of varied materials, much more common. Curriculum based on thoughtfully stated objectives could, potentially, attain a degree of freedom which it does not now have in most schools.

Teachers would also have a situation in which it would be easier to show a child the kind of progress he is making—possibly the most important key to motivation. It has been said that if a teacher gave each learner a copy of the objectives, he might not have to do much else. Though this is probably an overstatement, it does point to a very important concept which has been neglected. Too often, the assumption has been made that as long as teachers know what the goals are, it doesn't matter whether pupils know them. Teachers are discovering this is not true—that the more the pupils know about where they are going and why, the better. Behavioral objectives can be used to make these goals very clear to the pupil himself.

Many teachers may be willing to do a better job of teaching reading but they cannot do much more than they are doing right now because they don't know clearly what reading is and what the teaching of it involves. If they are asked to read something (it doesn't matter what) and then to tell exactly what they were doing as they read, even some experienced teachers cannot produce any clear analysis. They do not understand what the process involves. This is an understanding they must have (at least in a pragmatic sense) before they can teach it—reading is not a single global act, though in the mature reader it seems so and his responses are so integrated and efficient that it approaches a single act. But to teach reading, teachers must analyze it and see each part of it for what it is.

Good statements of behavioral objectives help teachers to understand what makes up the reading process. These teachers begin to ask: "How do you teach children to do this or that?" not "How do you teach reading?" They begin to get down to specifics and practical procedures. They are less frustrated and negative. Even teachers of content areas in secondary schools begin to see that, though they may not know much about teaching reading, they can pick out some things they see as particularly important in the reading of their own subject and learn how to zero in on these things, without undertaking the whole job at once.

Another plus for behavioral objectives is the fact that the public can understand them. A goal like this is essentially meaningless to most nonteachers: "To help children become more critical in their reading." But if it is restated as follows, and particularly if the public has an example in the

form of a test exercise or a reading task to which children are expected to respond successfully, teachers begin to communicate: "Given an editorial from the local newspaper, the student will be able to tell which statements are statements of fact and which are statements of opinion." This kind of goal makes sense to the man on the street who begrudges the use of his tax dollars to pay for something he does not understand.

Developing Objectives

The most persistent of the objections to the use of behavioral objectives (to the whole concept of accountability in its present sense) is, as has been indicated, the fear that it will lead to emphasis on mechanical, trivial detail because learning of this detail is so easily measurable. It is true that accountability is married to measurement, and the state of measurement in the field of reading is unsatisfactory. There are some very important results of a good reading program which are not measurable or even observable, at least not immediately. They may never be measurable except through the pupil's self-assessment of what is going on in his mind and heart. But it seems very unwise to reject a whole procedure because there are some parts of it which do not work or, at least, not yet.

Teachers tend to think of measurement in terms of paper-and-pencil tests, forgetting that there are other, though not so precise, ways of telling what has happened to pupils as a result of instruction. Objectives relating to the more advanced levels of cognitive functioning, as well as to the affective domain, may have to be more open. They may have to specify a list of acceptable types of behavior as indications that learning has taken place. Checklists and attitude scales may be of use. Guided observation of the pupil's activities can surely be of help.

The way the objectives are stated is important here. Compare, for example, these two:

1. The student will be able to read ten examples of the use of figurative language and name each example.
2. The student will be able, from a set of ten examples of metaphor, to generate a definition of metaphor.

This first statement is on an identification level only; the second, on the level of synthesis.

Or this:
After the student has read selections from Thoreau and Kantor's *Anderson-ville Trial* and has discussed Rousseau's *Social Contract* in class, he will be able to write a critical essay in which he discusses the right of a citizen to freedom of conscience. In writing the essay, he will be able to support his arguments by direct reference to his readings.

Or this:
Having read several stories about sharing with others, the child is observed to share something that he values with some other child in the class.

Objectives such as these are measurable—objectively so. It is obvious that teachers have to learn to measure internal growth (attitudes, interests, feelings) by the external symptoms they can observe, and so far they have not done a good job. Granted, some of these measurements may not be purely objective. It is certainly too soon to say that these things are not measurable and that, therefore, a curriculum built on behavioral objectives must of necessity be both incomplete and mechanistic.

How Do You See It?

There are those who feel that accountability as expressed in behavioral objectives will rob the teacher of his creativity and deprive him of personal responsibility for his program. They see a reading program built around behavioral objectives as mainly concerned with trivia; dominated by a constant pressure to test, test, test; oriented to skills with little regard for children's attitudes, tastes, and feelings about reading (children will learn to read but won't care what they read or, indeed, whether they read at all); a piecemeal kind of instruction in which the attainment of fragmented goals is the thing, never mind what they add up to or even whether they add up at all.

There are others who see that accountability as expressed in behavioral objectives may be a strong force to move teachers in the direction of a student-centered curriculum; teaching procedures which are diagnostic and flexible; greater freedom for the teacher to teach as he wants to but without losing a sense of structure and continuity; heightened motivation for the children who can clearly and frequently see that they are arriving at goals they can understand; more ready acceptance, particularly by secondary teachers, of their responsibilities in the reading program because they can see its parts and visualize how they can fit into the scheme without being overwhelmed; a good way to "sell" the program to the public who must support it with dollars because, if teachers describe what they are doing in clear and specific terms, they have a chance of convincing the noneducator that they *do* know where they are going and they *do* have a way of knowing whether they got there.

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• *What five approaches are illustrated to involve students in learning through reading?*

READING SKILLS THROUGH SOCIAL STUDIES CONTENT AND STUDENT INVOLVEMENT

Jill Catherine Frankel
Berendo Junior High School
Los Angeles, California

Within the four walls of the social studies classroom thirty-eight seventh graders sat, stretched, laughed, and yawned. According to standardized tests, their reading levels ranged from grades three through eleven. Interests varied to include the gamut: who was going with whom in the class, the fate of the American Indian, and Kung Fu. This diverse group was met with one sturdy seventh grade history text and a classroom library untouched by teenage hands.

To meet the needs of this diverse group, I coupled social studies content with critical reading and communication skills. I expanded my definition of reading to mean not merely the ability to decode the printed word, but the ability to understand and evaluate all forms of primary and secondary resources. Reading would also include the ability to apply the comprehended information through a variety of media from the printed word to graphics to dramatics. I developed multilevel lessons with enough flexibility for each student to grasp the content at his own level of reading ability from remedial to gifted. I also designed involvement and success into each unit to meet the affective goal of having each student develop positive feelings toward himself. To put this theory into practical classroom use, I developed five approaches calling for total student involvement.

Adapted from *Journal of Reading*, 18 (October 1974), 23–26.

Homemade Library

During the first week of class, I disposed of most of the library and presented the class with an unusual sight—an empty bookcase. "This is our library. What are you going to do about it?"

(Silence.)

"You are going to write your own books."

"Us write books? You're crazy! That's impossible."

Somehow the notion of writing a book is very monumental. But the paper was turned sideways and stapled through the middle, and our library grew.

We used a language experience approach and allowed total freedom in terms of subject matter and language structure. The results were highly individual. Some books were simple, others were lavishly illustrated and could be officially "checked out" by signing the included card. The more advanced readers researched topics from encyclopedias and books. Others wrote love stories or events inspired from their own lives or television. Those who could write only a few sentences wrote captions for pictures in their scrapbooks. Because the class was heterogeneous, I assigned student tutors to help other students with writing, grammar, or oral reading of their books. Students often reported on each other's books for book reports, a great honor for the authors. To this basic core of student-made books, I added catalogs, magazines, and appropriate paperbacks. Our library was now used.

Games

A geography unit on map reading skills made our classroom look like a game factory. I put the responsibility on the students for producing a library of social studies games. Each student brought a road map to class. They began by writing and answering questions about the maps. Questions involved all aspects of map reading from mileage scales to identifying interstate highways to being able to determine populations of cities.

The next job was to turn each map into a game board. Each student marked a route on the map from one city to another which represented the route from starting point to finishing point of the game. Cities along the way indicated stops. Players moved from city to city based on their ability to answer map skills questions. These questions were written on cards with questions on one side and answers on the back. To complete the package, instructions were included on how to play the game.

Students reinforced map and reading skills in designing and playing their games. Instruction writing proved to be an excellent communications assignment. Playing games with a friend was a popular activity.

Projects

The success of student-made games led me to use the approach for a combined values, social studies, and reading project later in the year. I assigned the project as follows: Students could choose any social studies topic to work with. They were required to write a question and answer booklet incorporating the results of their research. A game board, experimental in its form of graphic communication, would indicate the student's values and written instructions would tell how to play the game.

For example, the boys who designed the game "All Junkies Are Dopes" put a positive value on not using drugs. This, then, was the goal and finish of the game. Along the route to a drug-free life, however, a player might land on a square saying, "Busted for marijuana possession. Go back five spaces." Other squares required the player to know the answer to a question about drugs, found in the question booklet, before advancing.

A wide range of values was encouraged. "You and Me: The Marriage Game" made getting married the end goal. The researched questions included facts about international customs of marriage. In the "Women's Liberation Game" a player would win when she attained her equal rights before the law. In this game, getting married might move a player back! Here, research centered around the Equal Rights Amendment.

This was a multilevel assignment. While the "Watergate Game" required comprehensive reading and research skills and using magazines and newspapers, the "Survival Game: The Game of Gangs" involved simple recording of one's own knowledge of the neighborhood.

Students read enthusiastically about their topics and employed critical thinking skills in formulating their questions. Students playing each other's games needed to read instruction booklets in order to play, encouraging students to communicate clearly and players to read accurately. Students made value judgments based on conclusions derived from their research.

Consumer Education

Consumer education was our next problem. As a springboard, I gave each student copies of food labels. I asked them to critically read the labels and identify unnecessary or misleading information. Using the inquiry approach, we compiled a list of facts we felt were necessary for the consumer to know when buying a food item (weight, ingredients, price, and so forth).

I had students apply what they had learned by designing two can labels. One can would be the ideal can and the other, the imperfect can. The labels were drawn on paper strips, then rolled and stapled to look like real cans. For example, "Friskies" was priced at 20¢ per can and contained meat by-

products, while "Riskies" was priced at two cans for 53¢ and contained cereal.

Teams

The next part of the unit involved teamwork. I divided the students into small firms whose function was to market one item. The conditions were: 1) There must be a market for the item within the school community, and 2) the item must not have an adverse effect on the environment.

Condition one was satisfied through marketing research. For example, would the bicycle firm have greater success selling a three-speed, five-speed, or ten-speed bike? Students compiled a list of questions relevant to their product. The questions became part of a group questionnaire used to poll their schoolmates during lunch break. In this way, the most popular model of television, motorcycle, car, or even bug spray could be determined.

Condition two was satisfied by writing an environmental impact study of the product. Little information was available on this topic so each firm cooperatively wrote how they ideally would want their product to affect the environment. Students became aware that a firm had a greater responsibility to the public than merely selling a popular product.

Communication was my emphasis as students designed ads for their products. We discussed real magazine ads in terms of their effectiveness in selling the product and not violating consumer rights. Students designed magazine ads for their own products, illustrating them and using persuasive writing techniques. That night's homework was to watch and analyze television commercials. This brought us into a discussion of mass media and led each firm to dramatize commercials for their own products. The class evaluated the resulting commercials according to the standards they had determined.

The climactic ending to this unit was two neighborhood field trips. We visited a billboard manufacturing company and Lawry's Foods headquarters. Students voluntarily brought lists of questions and thoroughly quizzed the guides. One student even brought a tape recorder so we could further analyze all we had learned back in the classroom laboratory. This approach to consumer education brought reading and social studies into a real world context for the students.

Drama Use

Drama was a multipurpose classroom tool. It brought us together as a class. It allowed some class members to succeed where they had never done so before. It allowed students to communicate through a new medium and practice their speech and language skills. Values were examined through drama with role playing activities. I gave the students a situation, they im-

provised the rest: You are being asked to join a gang. How will you and the gang members respond? *Action.* You are taking a test. Your best friend signals you for some answers. What do you do? *Action.* In the middle of the action I might ask the actors to switch roles to see the situation from the opposite viewpoint. I participated, often taking the role of student, and had students play my role as teacher, parent, or friend. Students were soon bringing in their own real or created situations to act out. Improvising their reactions, students examined their own behaviors and those of their peers in a realistic setting. The popularity of this activity made it a reward for good work during the rest of the week.

Values were also considered in our social studies content areas. In a unit on the penal system, drama was used as a values monitor and a feedback system for me to determine what had been learned. After reading an article on prisons, students discussed their feelings in groups. They reported back to class their conceptions of the ideal penal system by acting out the life of a prisoner in this setting. This sort of approach to subject matter resulted in a high degree of student interaction and involvement.

On the last day of school students took home their original books and games. Here were tangible results of the achievements they had made during the year and some good review material to use over the summer to polish up on reading and social studies skills. And most students went home with some very positive feelings about themselves, too.

• *What specific characteristics of the* DECA *program account for its success?*

A SIGN THAT ALL CAN READ

Journal of Reading Staff Feature

Happening upon a school program that seems to "work" extremely well is always a delight. Invariably it marks the presence of one or more alert, energetic teachers. Add administrators who not only offer full support to the program, but who speak openly of expanding and adapting programs like it in the rest of the school, and delight turns to enthusiasm. When students themselves volunteer excitement about the program and seek wider public understanding and support of it, the impact is beautiful!

Would you believe, further, that some of the most enthusiastic students involved figure they would be dropouts if it were not for the program, and that they represent groups that most high schools have pegged euphemistically as "average and below"?

Instead of dropping out, members of the Newark High School chapter of DECA (Distributive Education Clubs of America) talk proudly of their school program, one that takes some of them from their home base in Delaware to Los Angeles, Baltimore, San Antonio, New York. They converse as easily and as often about addressing the local Rotarians or the Chamber of Commerce or the Kiwanis or Optimists as they do about such projects as the publicity campaign they are running for the basketball game they are sponsoring between a faculty team and a team of disc jockeys from a nearby radio station.

What they and their teachers have to say about reading, either directly or

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indirectly, probably needs to be heard by any reading instructor who seeks rapport with students turned off by traditional programs.

What They Read

"The DECA program is an action program," Robert Richmond declares. Three years in his present job at Newark High, he heads a team of three teachers who serve as advisors to the club. "Its purpose is to train kids for careers in marketing, especially retailing. One of the primary goals, or needs, is to equip them with the tools of self-expression."

The frequent and almost interchangeable use of goals and needs in the conversations of Richmond and his colleagues, George Webber and Robert Parsons, is a direct clue to an underlying principle of the program. It is highly task-oriented and geared step-by-step to specific needs. Its use of reading activity, then, is almost predictable.

"Although we serve 2,000 students, we have no reading program as such in the school," Principal Nelson Freidly reports. "There is a bit of reading instruction carried out through some English classes, but we haven't yet been able to coordinate other classes very closely with less traditional programs like DECA."

Richmond and his team know more than anyone else what the DECA students read and don't read, why and why not, and how effectively.

"They read committee assignments and reports all the time. They have to. It keeps the club actively going."

Jewel Duke, school librarian, notes that the DECA students request and use an inordinate number of manuals, reference works, and other technical materials—almost always tasks that are tied in with club projects.

The student handbook distributed nationally by DECA, Inc., is clearly organized into short subsections and written in direct, uncomplicated style. Printed on heavy stock and loosely color coded by major sections, it is attractive but functional. The good DECA student refers to it regularly.

"Suppose a boy is put in charge of an awards banquet," Richmond explains. "He has to know what to do and how to do it, so he finds material on how to prepare for a banquet and reads it."

What kinds of reading material are most helpful and most needed by students in the program? "Newspapers, advertisements, how-to's, booklets on careers and vocations, directions of various kinds. Articles on grooming and personality problems or development. Specific guides on how to get along with people. If these kids are ever going to pick up something on their own to read, it has to be realistic, the vocabulary simple and direct. Minibooks would be wonderful. Most of these kids haven't finished a piece of book-length fiction in their lives."

With all the pragmatism behind such observations, the three teachers make little or no use of textbooks. There are textbooks in the DECA room, and they are used, but rarely on a classwide basis. Rather, they are considered to be potential resource material should a student need to go to some passage within a textbook for some specific purpose, probably in line with a project or activity.

Elements of Program Success

Probably all the basic elements that seem to account for the Newark program's success could be incorporated into reading programs or adapted to them. While students are evaluated in the program and grades are mandatory in the school, grades offer little or no motivation to the students. Personal motivation is found in the competition built into the DECA structure itself. That competition can take place among students in a chapter; among chapters; and on local, state, and national levels. The fact that the Newark chapter has been number one in state competition four years in a row and number two in the nation is volunteered early in interviews of club members, teachers, and Principal Freidly.

Eighteen different projects underway within the program offer students a variety of interests and provide a wide arena for creativity and problem-solving. Signs scattered around the classroom in which meetings are held spell out some of the emphases and elements of success: "Today we're number two. Tomorrow is up to you." "Say 'I'll try' not 'I can't'." "You Are the Key Person in DECA." The club's national trophy stands tall at front and center day and night. Certificates of achievement hang from walls.

The extension of program beyond school walls and hours is a great source of pride and a training ground for responsibility—dinners with local business representatives, trips to state and national competitions, money-raising activities in the community. The group contracted with the nearby University of Delaware to clean up the university stadium after home football games—for a price, naturally. In carrying through such club projects, the members who actually show up to do the work are rewarded with points that accrue to the individual's credit. Then, when individual members need funds for special DECA events—to finance a trip to competition in Los Angeles, for instance—they share in the group's "profits" to the extent of their individual efforts, as measured by the total points each has earned.

Constant emphasis on self-help as well as on mutual support and cooperation pays off not only in individual feelings of worth and involvement, but also in unusually strong esprit de corps. Furthermore, it has obscured the lines between student and graduate to a great extent, as many of the "alumni" of the program return not only to formal club events like the annual breakfast for the installation of officers (held at a restaurant, not in the school

cafeteria) but also simply to offer advice, counsel, and encouragement informally.

The Teachers Involved

"Our priority," Richmond reports, "is the individual student with a problem." The penchant is apparently contagious, for Junior Michael Henderson, while presiding over a recent club meeting, accompanied each new task assignment to individual members with the same question, "Do you know what to do?" If the response was hestitant, Mike turned to whichever other student officer happened to be overseer for the particular project being assigned and offered no question, but a confident "You know what to do. Help her."

"In a program like this," one of the teachers remarked, "with the kids we're trying to reach, you simply don't have enough time to worry about teaching all the necessary skills as skills—not even reading skills. We hope that reading skills will take care of themselves if the motivation and belief are high enough among the students and if there is enough support from us and from their peers."

Arguing that there can be no student failure in the program and the course that surrounds it because the program's chief purpose is to serve as an exploratory experience for the students, letting them decide whether salesmanship is "their thing," the teachers tend to forget about grading as much as they can. "How can we fail a student if the program is exploratory? Either he learns that the program is for him, or learns that it isn't. Either way, he has learned."

"Pay your club dues and you've passed," is the way one student put it. "We really don't care about grades—never have. We're in this for other reasons."

One of the "other reasons," most of the students agree, is the easy and extensive rapport between themselves and the club advisors. Those teachers find themselves working as often as not in guidance functions, or as advocates in behalf of one or another student, as liaison with local businesses in which students are employed parttime. They write reports on club activities or student achievement. They are side by side with students cleaning up the university stadium or performing in one or another of the many other money-raising projects.

"We kind of bend the rules, if we have to," one confessed. The students see the teachers as twenty-four hour professionals who believe in their program and their students. The three teachers, who among them are responsible for more than 200 students, understand the full significance of that perspective.

How Do You Know It Works?

With a program so flexible and varied, many wonder how anyone can vouch for the program's "success." It is impossible to count the number of dropouts who did not drop out of school because the program "kept them in." Where grades are played down by teachers and students alike, it is ridiculous to point to As and Bs and Cs. If no one fails "who has paid his dues" in this exploratory program, one cannot even resort to the usual pass/fail criterion.

The teachers involved point to the respect the program has among local business persons, many of whom hire DECA students to work during afternoon hours. (The typical DECA student at Newark has completed his formal school day by noontime.) They point to placement and employment records of program alumni, and to continuing support and participation in the program by its graduates. They point to trophies and scores and certificates gathered in competition with other clubs, evaluated objectively by impartial judges. When pressed, they conjecture a program dropout rate of less thar 5 percent in six years.

As for transfer of reading habits from project-centered materials to wider uses and interests, there is less assurance. "There is some transfer, certainly," Mrs. Duke believes. "I've read more of my assignments in other classes than I used to," allowed one student.

If there was any doubt in the local public's mind about the success of the program, for several months a huge billboard alongside the main highway into town faced every incoming motorist:

"A community to be proud of — Home of the Newark Chapter of the Distributive Education Clubs of America, Inc."

Paid for by the Newark DECA chapter, it was a sign that all could read.

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